



Sustainability indicators for crypto-assets

Disclosures pursuant to Article 66(5) MiCA

This report was provided by:



Table of Contents

Preamble	22
Overview	22
Sustainability indicators	51
Bitcoin	51
Dogecoin	55
Kaspa	59
Litecoin	62
Bitcoin Cash	65
Ethereum Classic Ether	70
Zcash	73
DOG•GO•TO•THE•MOON	77
Siacoin	81
Quai	84
Dash	87
MAGIC INTERNET MONEY	92
Lobo Dot The Dot Wolf Dot Pup	98
Pups Dot World Dot Peace	102
Billy (Bitcoin)	108
Stacks	114
Solana SOL	117
Internet Computer Token	121
EthereumPOW	125
TRON TRX	128
Filecoin	132
Ethereum Eth	137
Qubic	140
Conflux	143
Gram	146
NEAR Protocol	148
Avalanche AVAX	153
Cardano ADA	156
MultiversX EGLD	160
Polkadot DOT	164
Citrea	170

Flow	173
Kusama	176
USDC	179
Ripple XRP	201
Arweave	206
Algorand	209
Sui	212
EOS	215
Merlin	219
Tezos	221
Wallet Connect	224
Aptos Coin	226
Saga	228
Berachain BERA	230
Injective Token	232
KAVA	238
SEI	243
Cosmos ATOM	246
Canton Coin	252
Terra	254
Flare	256
Nillion	258
Autonomys Network	260
Terra Classic	262
ICON	264
Neutron	266
Cronos	268
Aleo	275
XDC Network	277
Polygon POL	280
Qtum	283
BSquared Network	285
Binance Coin	288
Casper	291
Sonic	293
Hedera HBAR	295

Mina	297
Celestia	301
Akash	304
Energy Web Token	306
ROSE	308
Fantom	315
SNEK	317
Hyperliquid	320
Dymension	322
NEO	325
Gas	328
Moonbeam	330
Osmosis	333
OKB	336
Constellation	339
Story	341
Pi Network	343
Mantle	345
Monad	348
Acala	350
Stellar Lumen	352
Nesa AI	354
initia	356
Babylon	358
Concordium	360
VeChain	363
Verona	366
Celo	370
tx	374
MANTRA	376
Lisk	378
Nexus	381
Secret	383
Hydration	386
Kinto	388
Band	390

U2U Network	396
zkVerify	399
THORChain	401
JUNO	403
Moonriver	406
Portal To Bitcoin	408
Zeta	411
Bittensor	413
PEAQ	415
Linea	417
Chiliz	419
Union	422
Nano XNO	425
Metis Token	427
Espresso	430
Songbird	433
Karura	435
ALTHEA	437
Shiden Network	439
Boba Token	441
Mezo	444
GUNZ	447
OG	450
Gensyn	453
Nodle	455
Matchain	457
Stride	459
Movement	461
Basilisk	463
Plasma	465
Astar	467
Altair	469
Analog	471
KiiChain Token	473
Livepeer	475
Wrapped BTC	478

Katana	480
MemeCore	484
Tac Token	486
Paycoin	488
Uniswap	490
Kujira	494
DeLorean	498
Parallel Finance	500
Integritee	502
Acurast	504
ChainLink Token	506
IAGON	515
Kintsugi	518
ZKsync	520
KILT	522
Plume	524
SKY Governance Token	527
1INCH Token	529
Curve DAO Token	537
Aave Token	543
Shape	553
Pump.fun	555
OpenLedger	558
Pepe	561
Global Dollar	563
Interlay	565
SHIBA INU	568
Sui Name Service	570
Numeraire	572
Lighter	574
ENA	576
DeepBook Token	578
Walrus	580
Raydium	582
Fly.trade	585
SPX6900	587

Ondo	591
Arbitrum	593
MegaETH	595
Kinetiq	597
LOFI	599
Scallop	601
Convex Token	603
Cash	605
PancakeSwap	608
Paxos Gold	614
Pendle	619
EURC	622
Moonwell	627
Cyber	630
Velodrome	633
SushiSwap	635
DuckChain Token	641
Useless Coin	643
Lido DAO Token	646
COTI Token	652
ether.fi governance token	655
ApeCoin	657
Zama	661
Non Playable Coin	666
Lucky Kat	671
JUST	673
AZTEC	676
ADI	678
Anoma	680
Onyxcoin	683
Centrifuge	686
Worldcoin	688
Jito	690
Mog Coin	693
Seeker	695
Seeker	698

Morpho Token	701
Quant	703
Magic Internet Money	706
Stronghold SHx	713
Eigen	718
AIOZ Network	720
Axie Infinity Shard	722
Maker	728
The Interfold	732
Bancor	734
Fartcoin	739
Ethereum Name Service	742
Graph Token	746
Compound	748
Derive	756
World Liberty Financial	759
Render Token	764
Yield Basis	768
SAND	770
Phala	775
Syrup Token	777
Aethir Token	779
Turbo	781
StarkNet Token	783
Reserve Rights	786
Picasso	789
LoopringCoin V2	794
yearn.finance	796
LayerZero	806
SuperVerse	808
Wootrade Network	810
Gala	817
Spark	819
0x Protocol Token	822
VeThor	828
ZIGChain	830

Orchid	836
SODAX	838
Synthetix Network	840
JasmyCoin	849
NYM	851
StorjToken	854
Optimism	856
FLOKI	858
Telcoin	861
Request Token	864
CoW Protocol Token	866
BitTorrent-New	868
Virtual Protocol	872
OFFICIAL TRUMP	876
Trace Token	881
PepeCoin	883
tBTC	885
BENQI	891
BIO	893
GAL (migrated to Gravity - G)	897
Gravity	900
Beam	902
Threshold Network Token	906
Bonk	908
Jito Staked SOL	911
HarryPotterObamaSonic10Inu (ERC-20)	914
Wrapped Eth	919
Basic Attention Token	923
Biconomy Token	931
Rekt (rekt.com)	933
Fetch	938
Rujira	940
Bluzelle Token	942
Memecoin	945
Sahara AI	947
KGeN	950

Aerodrome	953
Immutable X	955
Safe Token	958
Decentraland	960
Rocket Pool	965
Vaulta	968
Clearpool	970
Vision	972
Yield Guild Games Token	974
Capricorn	980
Fabric Protocol	983
VELO	985
Puffer	988
StargateToken	990
HoloToken	996
JoeToken	999
Tria	1002
RHEA Finance	1005
Newton	1009
DAPPOS	1011
Pudgy Penguins	1014
Orca	1017
PowerLedger	1020
RedStone	1022
Aevo	1024
edgeX_edge	1026
Re	1029
GoMining Token	1031
Kamino Finance	1034
Euler	1037
Wormhole Token	1039
Infinex	1044
Moonwalk Fitness	1049
Usual	1052
Dent	1054
Mask Network	1056

RaveDAO	1060
Alchemy	1063
SSV	1066
Layer3	1068
Treehouse	1070
POPCAT	1073
WINKLink	1076
AltLayer Token	1079
Ankr	1082
Gnosis Token	1090
Midnight	1092
Liquity	1096
Across Protocol Token	1098
XY Oracle	1100
Arkham	1102
Star Atlas	1104
API3	1109
Blur	1111
Aster	1113
Succinct	1115
UMA Voting Token v1	1117
Everything	1119
Pyth Network	1121
Vanar	1124
Swell Governance Token	1127
Jeo Boden	1129
HTX	1132
Gitcoin	1136
Bitlayer	1138
Renzo	1140
DOVU	1142
OMI Token	1145
Pieverse	1147
Animecoin	1150
Big Time	1152
Enzyme	1154

Ocean Token	1157
Quantoz USDQ	1159
Harvest Finance	1163
Cap	1167
Camp Network	1170
Frax Share	1172
Sentient	1179
Pstake Finance	1181
Orderly Network	1186
Brevis	1188
Moca	1191
Obol	1193
Synapse	1195
Aligned	1203
Coq Inu	1205
AINFT	1207
Space and Time	1212
USD.AI	1214
DoubleZero	1216
Hashflow	1219
OriginToken	1221
Spell Token	1223
Dolomite	1227
SUN	1230
TokenFi	1233
Audius	1236
Alchemix	1241
Cartesi Token	1243
Mirror Protocol	1245
PORTAL	1248
Kyber Network Crystal v2	1250
Wen	1254
Chintai	1257
Dual	1262
Enso	1264
Bonzo Finance	1267

dogwifhat	1269
Wayfinder Prompt	1272
GAIB	1275
Enjin	1278
ResearchCoin	1282
Hyperlane	1284
Marlin POND	1288
Gluwa Creditcoin Vesting Token	1290
iEx ec Network Token	1292
Helium	1294
RAILS	1299
Propy	1301
Civic	1303
INFINIT	1306
Verse World	1309
aixbt by Virtuals	1312
SuperRare	1316
BLEND	1318
OVERTAKE	1320
Wrapped Axelar	1323
gib	1325
HashPack	1327
Venice Token	1329
Covalent X Token	1331
Ampleforth Governance	1333
Talus	1335
Tanssi	1337
CelerToken	1339
AlphaToken	1342
Litentry	1346
sudeng	1348
Balancer	1350
Echelon Prime	1355
Bounce Token	1357
Marinade	1360
Vultisig Token	1363

zkPass	1365
YOM	1367
openloot	1369
IDEX Token	1372
Bluwahle	1374
Sweat Economy	1377
Adventure Gold	1379
Solstice	1381
GMX	1384
Nosana	1387
DGRID	1390
Omni Network	1392
Grass	1394
KERNEL	1397
SUNDOG	1399
Spacecoin	1402
Open Loot	1404
Bricks	1406
HashKey Platform Token	1408
Serum	1410
dYdX	1416
Perpetual	1420
LCX	1422
Open Campus	1424
AI Rig Complex	1427
Badger	1430
Rarible	1432
OMGToken	1434
GAIA	1437
MANTLE STAKED ETH	1439
Zebec Network	1441
Star Atlas Dao	1444
Samoyedcoin	1447
Goldfinch	1450
GameBuild	1452
Keep Network	1455

Zora	1459
BarnBridge	1461
Flux	1463
Unicorn Fart Dust	1469
Humanity Protocol	1472
Hey Anon	1475
Arcium	1481
whitebit_coin	1484
PolkastarterToken	1487
Radicle	1489
Limewire	1491
EURØP	1494
BitDAO	1496
Cloud	1498
GIGACHAD	1501
Bertram The Pomeranian	1504
Vine Coin	1507
ARPA Token	1510
Mind Network	1514
Tribe	1517
Tokemak	1519
Clover	1521
Flock.io	1523
Chromia	1525
Aavegotchi GHST Token	1527
Avalon Labs	1530
Kin	1533
Alien Worlds Trilium	1536
Bubblemaps	1539
Quack AI	1542
Peanut the Squirrel	1545
ZEROBASE	1548
Zerebro	1551
Liquid Staked ETHereum	1554
Rubic	1556
XL1	1558

Aura	1560
MultiBank Group	1563
Simons Cat	1565
Sign	1569
My Shell	1572
deBridge	1575
Moo Deng	1578
BONDEX	1581
Saros	1584
PlaysOut	1587
Keep3rV1	1590
Jupiter	1592
TrueFi	1595
Chill House	1597
Eclipse	1600
Banana For Scale	1604
Soso Value	1606
Act I The AI Prophecy	1608
Yooldo	1611
Multichain	1614
Bonfida	1620
Goatseus Maximus	1623
Zircuit	1626
Melania Meme	1628
HONEY	1631
Magic Eden	1634
Unstable Coin	1637
yellow ket	1640
Ambire AdEx	1642
Mubarak	1644
ai16z	1646
StabIR USD	1649
Bless	1653
swarms	1657
xU3O8	1660
test griffain com	1662

cat in a dogs world	1665
Mira	1668
RETARDIO	1671
Lava Network	1674
Theoriq Token	1678
Gmt	1680
FIGHT	1683
Augur Reputation Token	1687
Parcl	1689
Quantoz EURQ	1692
Alchemist AI	1694
Huma Finance	1697
Neiro	1701
StaFi	1703
DOGS	1705
Hamster Kombat	1707
NOT	1709
Lock In	1711
UNFI	1714
MYX Finance	1717
Aventus	1719
Forest Protocol	1721
BOB	1724
Robonomics	1726
Balance	1728
ROOK	1731
Almanak	1733
SUKU	1737
Zeus Network	1739
Avantis	1742
OLXBT	1744
SOON	1746
Oxygen	1751
CARV	1755
Bifrost	1760
Dai Token	1762

PlayDapp	1764
Test	1766
Toshi	1768
Coin98	1770
Drift	1775
Moonchain	1778
B3	1780
Squid	1782
Housecoin	1784
SatLayer	1787
Tensor	1790
Wingbits	1793
PONKE	1796
Pipe Network	1799
SelfKey	1802
Corn	1804
tokenbot	1806
elizaOS	1808
FWOG	1813
Warden	1816
SIGMA	1818
Maple	1822
Keeta	1824
Degen	1826
USDSM	1828
titcoin	1830
Checkmate	1833
Cheems Token	1835
Zeta	1837
KAITO	1840
Infinity Ground	1842
Sonic SVM	1844
Apu Apustajasee	1847
Solayer	1849
Saber	1852
Gari	1855

Swipe	1858
StablR Euro	1863
NodeOps	1869
Cookie DAO	1872
Loaded Lions	1875
Oobit	1879
Nobody Sausage	1882
RollX	1885
REPO	1887
Sapien	1889
Superform	1891
Sport.Fun	1893
Edge	1895
Alkimi	1897
idos	1899
Elixir	1901
375ai	1903
Soma Finance	1906
Eva AI	1908
RIZE	1910
michi (SOL)	1912
Giza	1915
Sogni AI	1917
Solv Protocol	1919
Kula	1921
AUKI	1923
Intuition	1925
Astra Nova	1927
Stool Prisdente	1929
Gensokishi Metaver	1932
Merit Circle	1935
AB	1938
Sidekick	1940
Codatta	1945
xMoney	1947
Abc Labs	1949

CF Large Cap Index	1951
Boost	1953
CUDIS	1955
Step Finance	1959
Rayls	1962
Term Finance	1964
Particle Network	1966
Xterio	1968
Mango	1970
UXLINK Token	1973
Fidelity Digital Interest Token	1977
Virtua	1979
beamable	1981
Odos	1984
FAI	1986
Planck	1988
Ghiblification	1990
Yala Stablecoin	1993
WorldMobileToken	1997
GreenSatoshiToken	1999
Syndicate	2001
SPICE	2003
Impossible Cloud Network	2006
SCOR	2008
EstateX	2011
Assisterr Token	2014
Infrared	2018
Hybrid	2021
FreeStyle Classic	2023
Moonveil	2025
Backstage	2027
Ls Solana	2029
Travala.com Token	2032
boss_token	2035
SaucerSwap	2037
Unite	2040

Genshiro	2042
chillhouse	2044
baby_shhark_universe	2046
Bitget Token	2048
Black Mirror Experience Token	2050
Crust Shadow	2052
Envision	2054
Linkka	2056
MoonTools	2058
My Neighbor Alice	2061
Raiin	2064
Ren	2066
Revive	2069
Space	2071
Traceability Chain	2074

Preamble

About the Crypto-Asset Service Provider (CASP)

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About this report

This disclosure serves as evidence of compliance with the regulatory requirements of Article 66(5) MiCA. Under this provision, crypto-asset service providers are required to disclose information on the principal adverse impacts on the climate and the environment. In particular, this disclosure complies with "Commission Delegated Regulation (EU) 2025/422 of 17 December 2024 supplementing Regulation (EU) 2023/1114 of the European Parliament and of the Council with regard to regulatory technical standards specifying the content, methodologies and presentation of information in respect of sustainability indicators in relation to adverse impacts on the climate and other environment-related adverse impacts". The optional information referred to in Article 6(8), points (a) to (d), of Delegated Regulation (EU) 2025/422 is not included.

This report remains valid until material changes occur in the underlying data, in which case it will be updated promptly.

Overview

This is an overview of the core indicator "energy consumption" and does not constitute the disclosure required under Article 66(5) MiCA. The full disclosure is set out below.

#	Crypto-Asset Name	Crypto-Asset FFG	Energy consumption (kWh per calendar year)
1	Bitcoin	V15WLZJMF	156,787,610,364.18
2	Dogecoin	35PLJP6J7	4,913,777,208.12
3	Kaspa	N2LWX5WS0	2,831,162,818.96
4	Litecoin	D74JZ1VRD	721,436,732.61
5	Bitcoin Cash	919BF3W7L	636,995,160.50
6	Ethereum Classic Ether	DGMQMFZD4	365,312,557.20
7	Zcash	7JPSSTXMS	322,297,564.15
8	DOG•GO•TO•THE•MOON	/	96,836,731.10
9	Siacoin	766NMMLMQ	87,614,336.89

#	Crypto-Asset Name	Crypto-Asset FFG	Energy consumption (kWh per calendar year)
10	Quai	/	84,796,800.00
11	Dash	PPDH6B273	67,500,000.80
12	MAGIC INTERNET MONEY	RQPCRN3VN	30,660,708.38
13	Lobo Dot The Dot Wolf Dot Pup	/	14,308,329.66
14	Pups Dot World Dot Peace	/	11,497,767.99
15	Billy (Bitcoin)	/	10,220,238.37
16	Stacks	PQTGLSGRG	7,055,442.47
17	Solana SOL	6QZ1LNC12	6,843,750.00
18	Internet Computer Token	4DHTM5D7P	5,834,160.00
19	EthereumPOW	N1NLFX5KR	5,526,262.31
20	TRON TRX	HZ9HHNPLG	4,026,098.82
21	Filecoin	S6702SWRZ	2,409,020.31
22	Ethereum Eth	D5RG2FHH0	2,159,953.20
23	Qubic	/	1,909,680.00
24	Conflux	2K9VS42WV	1,837,140.73
25	Gram	KK12JMBTX	1,419,120.00
26	NEAR Protocol	MXXM59Z0T	920,545.53
27	Avalanche AVAX	S6JCBF70N	791,498.20
28	Cardano ADA	76QS7QCXB	773,946.00
29	MultiversX EGLD	H1V5PHW7P	716,130.81
30	Polkadot DOT	SGD9NLTRG	642,546.00
31	Citrea	/	627,154.56
32	Flow	6T49BCSXZ	526,695.00
33	Kusama	PX4GCX5B5	474,616.80
34	USDC	TJWK5QTRK	457,916.74

#	Crypto-Asset Name	Crypto-Asset FFG	Energy consumption (kWh per calendar year)
35	Ripple XRP	42PHJB2BS	456,257.37
36	Arweave	CPX6BGPR0	437,562.14
37	Algorand	K8S6W74KS	420,961.80
38	Sui	64RFW3D8P	394,725.60
39	EOS	8FWQPDTGZ	344,268.64
40	Merlin	NW1M13H3L	329,253.98
41	Tezos	FLJPFR9RS	282,247.53
42	Wallet Connect	/	269,238.60
43	Aptos Coin	C4CQCGLH2	262,800.00
44	Saga	/	262,800.00
45	Berachain BERA	L7XQXLN44	244,404.00
46	Injective Token	92M9B0DZ7	242,658.91
47	KAVA	2HZXZQLKX	236,682.94
48	SEI	XCDVP53WR	210,305.17
49	Cosmos ATOM	6C7F2WVZH	186,481.18
50	Canton Coin	VQ9SP7NFH	184,222.80
51	Terra	8SDRWQDG7	183,960.00
52	Flare	DVRV6HSK5	170,820.00
53	Nillion	/	170,294.40
54	Autonomys Network	/	144,540.00
55	Terra Classic	D444MB2WJ	131,400.00
56	ICON	P3JS307D2	115,106.40
57	Neutron	MB670B1M8	113,135.40
58	Cronos	GWM30MLW3	109,462.10
59	Aleo	FW6DMFBNZ	107,748.00

#	Crypto-Asset Name	Crypto-Asset FFG	Energy consumption (kWh per calendar year)
60	XDC Network	2DHMJ018G	105,120.14
61	Polygon POL	GB8DQ8DWN	96,364.05
62	Qtum	SH1MLXP1W	91,191.60
63	BSquared Network	1R9JFC50Z	90,318.71
64	Binance Coin	8N2VXJKB1	90,228.00
65	Casper	K508S2JCD	85,935.60
66	Sonic	7JBMLCWCR	84,358.80
67	Hedera HBAR	2WWB8QS47	82,125.00
68	Mina	133H6VJ48	81,205.20
69	Celestia	M7NN4STH9	80,791.98
70	Akash	/	79,628.40
71	Energy Web Token	VW0Z4C80S	79,628.40
72	ROSE	SXGLQRF6T	79,370.07
73	Fantom	GRLPK02K7	78,840.00
74	SNEK	BWXFZFFGQ	68,795.20
75	Hyperliquid	HLTPNVXN0	67,014.00
76	Dymension	/	65,891.35
77	NEO	N2FWML4CL	65,700.92
78	Gas	/	65,700.00
79	Moonbeam	K4HV4GN5K	65,700.00
80	Osmosis	TDS6NVZ46	65,180.92
81	OKB	V29WTD2ZV	64,948.67
82	Constellation	/	63,334.83
83	Story	BVZJV41L8	59,130.00
84	Pi Network	2Z2WZP5KM	54,399.60

#	Crypto-Asset Name	Crypto-Asset FFG	Energy consumption (kWh per calendar year)
85	Mantle	QH1GF1J5H	53,592.21
86	Monad	/	53,348.40
87	Acala	SJ2DGCXR7	52,560.00
88	Stellar Lumen	ZCN8SR2H7	52,560.00
89	Nesa AI	W7HTSC136	42,048.00
90	initia	5H84WFH8T	40,602.60
91	Babylon	/	40,208.40
92	Concordium	ZBF05NGN7	40,208.40
93	VeChain	M2DJLNPDW	39,946.17
94	Verona	HFKC0NXKJ	39,817.25
95	Celo	VWWMVDM0J	39,420.00
96	tx	/	35,478.00
97	MANTRA	11B60HRDS	33,375.60
98	Lisk	7J6VRX7JZ	32,850.00
99	Nexus	TPCZ31MGM	31,930.20
100	Secret	93XJT88VH	31,536.00
101	Hydration	/	30,747.60
102	Kinto	/	30,222.01
103	Band	1QM2QZQ5N	28,829.77
104	U2U Network	/	28,779.01
105	zkVerify	/	28,119.60
106	THORChain	426HSHMDM	26,805.60
107	JUNO	VDPRP0FHT	26,417.92
108	Moonriver	KW2NCBQ6M	26,280.00
109	Portal To Bitcoin	/	25,682.95

#	Crypto-Asset Name	Crypto-Asset FFG	Energy consumption (kWh per calendar year)
110	Zeta	9BJJBHB21	25,537.12
111	Bittensor	LBQFC0FVK	25,228.80
112	PEAQ	5ZCF8MLPL	24,966.00
113	Linea	DW1NCGR64	24,437.72
114	Chiliz	KNS06KRXQ	23,160.70
115	Union	/	22,370.78
116	Nano XNO	54PWFZNFT	21,549.60
117	Metis Token	RCGXTQ3G0	21,342.22
118	Espresso	/	21,026.21
119	Songbird	1GB15J049	21,024.00
120	Karura	/	20,498.40
121	ALTHEA	/	20,104.20
122	Shiden Network	2HQFBDLXV	20,104.20
123	Boba Token	L7CKSKP8K	19,753.75
124	Mezo	/	19,712.35
125	GUNZ	/	19,233.75
126	OG	/	18,923.03
127	Gensyn	/	17,909.45
128	Nodle	/	17,843.40
129	Matchain	RKVDPH4BZ	17,607.60
130	Stride	/	16,030.80
131	Movement	11KGBJ2W4	15,957.95
132	Basilisk	/	13,797.00
133	Plasma	ZC0VHB8ZB	13,402.80
134	Astar	87L5SX99N	13,140.00

#	Crypto-Asset Name	Crypto-Asset FFG	Energy consumption (kWh per calendar year)
135	Altair	/	13,008.60
136	Analog	/	13,008.60
137	KiiChain Token	B9XWQQWQ3	13,008.60
138	Livepeer	J80JRP8VM	11,087.25
139	Wrapped BTC	Z1K7V8BV8	10,927.93
140	Katana	/	10,643.45
141	MemeCore	6KC5M8HPV	10,643.40
142	Tac Token	/	10,359.58
143	Paycoin	/	10,249.20
144	Uniswap	XMB84LZBZ	9,745.92
145	Kujira	/	9,204.53
146	DeLorean	/	9,078.69
147	Parallel Finance	/	9,066.60
148	Integritee	/	8,672.40
149	Acurast	/	8,278.20
150	ChainLink Token	3R3J70FDR	8,009.66
151	IAGON	/	7,739.46
152	Kintsugi	/	6,701.40
153	ZKsync	BCBLPFRBX	6,570.98
154	KILT	/	6,307.20
155	Plume	FRZQZJ7BL	6,298.22
156	SKY Governance Token	G4GDNF84C	6,192.44
157	1INCH Token	SVRFHQQRZN	5,980.08
158	Curve DAO Token	P8DXFQ5LD	5,797.02
159	Aave Token	H618RN577	4,868.70

#	Crypto-Asset Name	Crypto-Asset FFG	Energy consumption (kWh per calendar year)
160	Shape	/	4,336.20
161	Pump.fun	C2F189JNL	4,242.44
162	OpenLedger	/	3,988.30
163	Pepe	J41R6PF81	3,598.61
164	Global Dollar	R9MZCNWS4	3,573.44
165	Interlay	/	3,153.60
166	SHIBA INU	M4HFTFNP	2,831.78
167	Sui Name Service	/	2,763.08
168	Numeraire	TCRZ9GZRF	2,736.27
169	Lighter	W0746TPZW	2,565.25
170	ENA	SPRSCSVSW	2,541.99
171	DeepBook Token	B41HCBXWK	2,239.58
172	Walrus	VDK0388GB	2,239.58
173	Raydium	7HFXRDFHH	2,175.99
174	Fly.trade	/	2,108.97
175	SPX6900	V9FVRLGKC	2,084.53
176	Ondo	WKH09L3DV	2,070.83
177	Arbitrum	44TP35HF9	2,056.78
178	MegaETH	/	2,049.84
179	Kinetiq	/	2,010.42
180	LOFI	/	1,973.63
181	Scallop	/	1,973.63
182	Convex Token	MDLR8VGRS	1,953.63
183	Cash	/	1,944.49
184	PancakeSwap	LZ3V3Z6FD	1,921.14

#	Crypto-Asset Name	Crypto-Asset FFG	Energy consumption (kWh per calendar year)
185	Paxos Gold	RPGFC7GN3	1,918.90
186	Pendle	5RJT6339X	1,675.22
187	EURC	13XTMPZT3	1,652.33
188	Moonwell	/	1,645.82
189	Cyber	/	1,641.15
190	Velodrome	3QN6WNR4L	1,553.57
191	SushiSwap	C1Z2W2TT1	1,517.74
192	DuckChain Token	91C5G6GWN	1,419.12
193	Useless Coin	8HBMRV08Q	1,370.71
194	Lido DAO Token	8W8GLGL65	1,288.17
195	COTI Token	4LMM6WFBW	1,251.29
196	ether.fi governance token	RJTJR45MC	1,244.58
197	ApeCoin	7WKVRWPNR	1,239.94
198	Zama	/	1,125.24
199	Non Playable Coin	/	1,052.02
200	Lucky Kat	/	986.81
201	JUST	DFGV0P5MN	976.98
202	AZTEC	F70GWBXDK	971.82
203	ADI	LX7S761QL	967.99
204	Anoma	/	915.51
205	Onyxcoin	XSGP9L77X	891.50
206	Centrifuge	J8HB3QFM5	885.24
207	Worldcoin	BJD0TZ8V1	882.17
208	Jito	D3XB6KZ00	871.32
209	Mog Coin	C4044KDRD	840.64

#	Crypto-Asset Name	Crypto-Asset FFG	Energy consumption (kWh per calendar year)
210	Seeker	D4X6WQD28	827.24
211	Seeker	/	827.24
212	Morpho Token	CH7NXRXR1	823.75
213	Quant	L8M8X31JL	813.34
214	Magic Internet Money	/	803.23
215	Stronghold SHx	Z9XPPVGGK	744.13
216	Eigen	QRLFSB800	738.19
217	AIOZ Network	BRPL13L58	736.13
218	Axie Infinity Shard	RTTDS5MHT	730.91
219	Maker	SV17PZF24	692.41
220	The Interfold	/	683.52
221	Bancor	HXXRZB3CB	669.76
222	Fartcoin	Z673VT588	652.61
223	Ethereum Name Service	B70SMJ5DQ	646.51
224	Graph Token	VMQPVH41W	626.38
225	Compound	KCHF60NW7	585.75
226	Derive	/	579.82
227	World Liberty Financial	3XVWCVFSX	572.50
228	Render Token	XR0JSKLNZ	558.31
229	Yield Basis	PVRBPLN36	551.64
230	SAND	BVGX9WS2C	524.07
231	Phala	C03MS3PW1	520.08
232	Syrup Token	7DLXGNF13	518.31
233	Aethir Token	1SL20Z9P1	503.35
234	Turbo	3GCHWJSWC	501.79

#	Crypto-Asset Name	Crypto-Asset FFG	Energy consumption (kWh per calendar year)
235	StarkNet Token	NLWPNNWQZ	498.74
236	Reserve Rights	DQT9BWGCF	493.42
237	Picasso	/	488.81
238	LoopringCoin V2	NZCPF6J82	478.39
239	yearn.finance	LS56Z3QRX	474.61
240	LayerZero	C0HH6QTBN	468.38
241	SuperVerse	N886T4TWH	464.64
242	Wootrade Network	G4515JG80	456.73
243	Gala	XS363HTZB	455.49
244	Spark	GS4H3VSB1	455.37
245	0x Protocol Token	HX56HH1ZX	452.47
246	VeThor	C06P3SQNX	439.40
247	ZIGChain	/	439.14
248	Orchid	WHX0WGOLT	426.35
249	SODAX	/	421.79
250	Synthetix Network	RSN26S0SB	418.20
251	JasmyCoin	CTLCNFBZW	413.73
252	NYM	/	412.95
253	StorjToken	3W1DV4L6C	411.46
254	Optimism	9NRMM2RC4	403.65
255	FLOKI	R1XC4HQT5	396.74
256	Telcoin	Q95MMRGRC	381.89
257	Request Token	3CJF47H8S	380.83
258	CoW Protocol Token	SF0HRQBH7	379.48
259	BitTorrent-New	2MTMX7RJR	375.91

#	Crypto-Asset Name	Crypto-Asset FFG	Energy consumption (kWh per calendar year)
260	Virtual Protocol	7WMBV0R29	369.53
261	OFFICIAL TRUMP	LJDPGNXXK	366.07
262	Trace Token	JD5R52PQX	355.66
263	PepeCoin	5DF819BDX	354.52
264	tBTC	/	345.29
265	BENQI	HZZKQKLNK	344.80
266	BIO	TBR0XDRN8	339.96
267	GAL (migrated to Gravity - G)	/	337.57
268	Gravity	JQGMWFSXV	336.80
269	Beam	X70FWW3GT	331.23
270	Threshold Network Token	LTSB7W5CZ	329.71
271	Bonk	H6KJTT0CP	323.94
272	Jito Staked SOL	QF1G0XXMM	323.71
273	HarryPotterObamaSonic10Inu (ERC-20)	/	323.22
274	Wrapped Eth	/	317.57
275	Basic Attention Token	51F8M277P	308.63
276	Biconomy Token	Z2JL201QX	304.89
277	Rekt (rekt.com)	/	299.56
278	Fetch	HWBLGXNBX	294.34
279	Rujira	NX7TM2NSS	281.46
280	Bluzelle Token	2NFJBNQWN	278.87
281	Memecoin	THW1BFN8J	270.07
282	Sahara AI	4PS1S77QG	269.12
283	KGeN	/	268.16

#	Crypto-Asset Name	Crypto-Asset FFG	Energy consumption (kWh per calendar year)
284	Aerodrome	N26VFQW6M	265.24
285	Immutable X	9LJ0XLJBT	262.84
286	Safe Token	GLNXBZWH5	257.03
287	Decentraland	21C6LF4SP	252.05
288	Rocket Pool	69Q6NLJ3M	246.89
289	Vaulta	D9D9M48K2	246.38
290	Clearpool	J2N57NP8S	245.33
291	Vision	BJZ3Z695K	239.87
292	Yield Guild Games Token	WV93P8B45	237.71
293	Capricorn	/	236.67
294	Fabric Protocol	/	230.01
295	VELO	Q52FMJ684	227.24
296	Puffer	/	227.18
297	StargateToken	RGP779MCT	222.38
298	HoloToken	PZHXZVGJB	217.52
299	JoeToken	VW204Q4J4	216.10
300	Tria	/	215.18
301	RHEA Finance	/	214.86
302	Newton	V0V04KHR3	213.14
303	DAPPOS	/	211.39
304	Pudgy Penguins	13JBPT88T	205.51
305	Orca	QS946B4NN	204.56
306	PowerLedger	JWDR0ZDL6	203.64
307	RedStone	7M4589PKM	200.73
308	Aevo	GXXVVRJW1	197.54

#	Crypto-Asset Name	Crypto-Asset FFG	Energy consumption (kWh per calendar year)
309	edgeX_edge	/	196.28
310	Re	/	195.34
311	GoMining Token	FKZ8K4CP0	195.25
312	Kamino Finance	LLRPNCLLK	193.13
313	Euler	BJSLLNX42	181.44
314	Wormhole Token	25J14XV4F	176.51
315	Infinex	/	175.65
316	Moonwalk Fitness	/	175.45
317	Usual	/	174.21
318	Dent	/	169.25
319	Mask Network	VTV046TSP	168.55
320	RaveDAO	79SDPH4J8	165.83
321	Alchemy	MBKSZCVQM	159.53
322	SSV	920QFJ930	158.97
323	Layer3	GCG7S59XF	154.50
324	Treehouse	7PQ1242P3	153.35
325	POPCAT	CPLCKVT11	152.70
326	WINKLink	DMFRX829S	152.50
327	AltLayer Token	B7HS0LP5T	151.80
328	Ankr	BL90MVXW4	148.62
329	Gnosis Token	VXDLZ59FC	148.12
330	Midnight	/	147.88
331	Liquity	C5D1WG11D	145.99
332	Across Protocol Token	1J4GM86GD	144.79
333	XY Oracle	B1LR50328	144.15

#	Crypto-Asset Name	Crypto-Asset FFG	Energy consumption (kWh per calendar year)
334	Arkham	327V1DQ8H	143.94
335	Star Atlas	/	143.45
336	API3	9PJW29SF7	142.94
337	Blur	R91SVKW99	141.53
338	Aster	H8BH7VR5W	139.25
339	Succinct	1ZZ7H452N	139.19
340	UMA Voting Token v1	JM4LKD71T	137.98
341	Everything	7V4002CQ1	137.70
342	Pyth Network	3980Q2CPS	137.00
343	Vanar	/	134.74
344	Swell Governance Token	G2M3R6WBH	133.94
345	Jeo Boden	/	133.14
346	HTX	QDHC3HZB6	133.11
347	Gitcoin	7JZQ9SP76	128.90
348	Bitlayer	/	127.84
349	Renzo	3SPXMRFNC	127.34
350	DOVU	/	123.83
351	OMI Token	3JJ63T2TQ	123.23
352	Pieverse	/	122.80
353	Animecoin	7WD8SJ6W6	122.50
354	Big Time	DM8NPMHHW	120.18
355	Enzyme	/	119.26
356	Ocean Token	TDDNSZP8W	118.55
357	Quantoz USDQ	XL2ZV90NC	118.41
358	Harvest Finance	/	117.99

#	Crypto-Asset Name	Crypto-Asset FFG	Energy consumption (kWh per calendar year)
359	Cap	/	117.44
360	Camp Network	/	116.28
361	Frax Share	BWNWXP3R1	115.21
362	Sentient	CL5MH7KPZ	114.72
363	Pstake Finance	/	114.72
364	Orderly Network	/	112.74
365	Brevis	/	109.84
366	Moca	NRS9TCXX2	109.55
367	Obol	/	107.77
368	Synapse	GS8ZHZ81L	107.24
369	Aligned	/	107.16
370	Coq Inu	6KJB18HSF	106.26
371	AINFT	4MH0C4BL6	104.23
372	Space and Time	QSTZK3PLV	102.67
373	USD.AI	6FNTLPHG8	102.64
374	DoubleZero	/	102.20
375	Hashflow	N3K1P14QN	102.10
376	OriginToken	4N5X371R3	100.83
377	Spell Token	2D7W0LVCF	99.18
378	Dolomite	G6QFN3Z7F	96.86
379	SUN	DRSV113K4	96.78
380	TokenFi	/	95.38
381	Audius	QZMN0FP41	95.00
382	Alchemix	WJCRD5LVT	94.02
383	Cartesi Token	BL44WHVKM	93.24

#	Crypto-Asset Name	Crypto-Asset FFG	Energy consumption (kWh per calendar year)
384	Mirror Protocol	/	93.03
385	PORTAL	FM8WBW4WC	91.89
386	Kyber Network Crystal v2	L0DZSBLVZ	90.48
387	Wen	CT2TZWNCQ	88.50
388	Chintai	/	86.71
389	Dual	/	86.15
390	Enso	/	85.14
391	Bonzo Finance	/	82.12
392	dogwifhat	10G31SK86	81.68
393	Wayfinder Prompt	3DFF12GSV	79.72
394	GAIB	/	78.38
395	Enjin	M9LNQXMNV	78.35
396	ResearchCoin	FDQM0JPZP	77.06
397	Hyperlane	8VJ8TXW4B	74.67
398	Marlin POND	QFL8HTJ6P	74.66
399	Gluwa Creditcoin Vesting Token	CJSC8G9C3	74.10
400	iEx ec Network Token	XFRDT01VR	72.61
401	Helium	4GX02L80B	72.52
402	RAILS	FBT24PNBJ	72.32
403	Propy	/	71.30
404	Civic	95LV3DCWZ	70.72
405	INFINIT	/	68.63
406	Verse World	/	68.49
407	aixbt by Virtuals	8762TQWQ6	68.06
408	SuperRare	BP7F347WD	67.50

#	Crypto-Asset Name	Crypto-Asset FFG	Energy consumption (kWh per calendar year)
409	BLEND	GNL7G95JR	67.08
410	OVERTAKE	5WC06T0FP	65.65
411	Wrapped Axelar	/	63.39
412	gib	638H37B26	61.59
413	HashPack	/	61.59
414	Venice Token	P0SD47M0W	61.33
415	Covalent X Token	PPFFC2XZM	60.34
416	Ampleforth Governance	62SV6Q4QP	59.63
417	Talus	/	59.21
418	Tanssi	/	58.64
419	CelerToken	3W8JZTFR6	58.64
420	AlphaToken	JGRKW0RKC	57.91
421	Litentry	1NBBMSK3X	56.01
422	sudeng	/	55.99
423	Balancer	Q8QDMDD7D	55.14
424	Echelon Prime	1VJ02JBZN	53.17
425	Bounce Token	CX8MCQ9R0	52.21
426	Marinade	KP2V762CJ	51.61
427	Vultisig Token	Q7FDRP31K	51.41
428	zkPass	GCSVX89G8	50.84
429	YOM	/	50.68
430	openloot	/	50.07
431	IDEX Token	1PC14K39T	49.70
432	Bluwhale	/	49.34
433	Sweat Economy	DFK01RSF7	49.07

#	Crypto-Asset Name	Crypto-Asset FFG	Energy consumption (kWh per calendar year)
434	Adventure Gold	2QNVF4SDM	48.64
435	Solstice	S6PKQMKSC	48.54
436	GMX	RBR43JPK5	48.02
437	Nosana	FXD9KSSZF	47.87
438	DGRID	/	47.86
439	Omni Network	/	47.79
440	Grass	MNCR2MKHP	47.66
441	KERNEL	L6N3VM7CM	46.44
442	SUNDOG	/	44.11
443	Spacecoin	/	43.68
444	Open Loot	/	43.54
445	Bricks	ZK1ZVS368	42.05
446	HashKey Platform Token	2HLT11X01	41.20
447	Serum	RQQ7X7PQF	40.97
448	dYdX	K8XRF7MFZ	40.49
449	Perpetual	VTP4QVSMM	38.78
450	LCX	LDWJPG944	38.29
451	Open Campus	RZ2VMHM33	38.15
452	AI Rig Complex	K499MSW6G	37.61
453	Badger	4GZZFJMVV	36.94
454	Rarible	2GFN66H47	36.80
455	OMGToken	HRSP99WHX	36.44
456	GAIA	/	35.88
457	MANTLE STAKED ETH	VSK737T5N	35.88
458	Zebec Network	DHV5NRJCF	35.32

#	Crypto-Asset Name	Crypto-Asset FFG	Energy consumption (kWh per calendar year)
459	Star Atlas Dao	/	35.00
460	Samoyedcoin	/	34.24
461	Goldfinch	CKL6S2F6B	33.89
462	GameBuild	8RL4W6N7Q	33.73
463	Keep Network	/	33.61
464	Zora	M4DCVM90D	32.21
465	BarnBridge	XVVR6FX58	32.19
466	Flux	4DF5G5HFZ	31.56
467	Unicorn Fart Dust	/	30.87
468	Humanity Protocol	/	30.78
469	Hey Anon	/	29.61
470	Arcium	2GM37J0CX	28.33
471	whitebit_coin	/	27.72
472	PolkastarterToken	8V4HL8BTV	27.51
473	Radicle	315760HRD	26.87
474	Limewire	/	26.61
475	EURØP	/	26.38
476	BitDAO	12NWNXVVR	26.31
477	Cloud	TP1T71J95	25.66
478	GIGACHAD	W1GC0WX1K	25.38
479	Bertram The Pomeranian	/	24.53
480	Vine Coin	B4FW49N5P	23.23
481	ARPA Token	XM59GZ001	23.13
482	Mind Network	/	22.76
483	Tribe	JPM88GN3L	22.55

#	Crypto-Asset Name	Crypto-Asset FFG	Energy consumption (kWh per calendar year)
484	Tokemak	6B8SMHSXT	22.33
485	Clover	THR3ML1F1	21.98
486	FLock.io	/	21.50
487	Chromia	/	21.20
488	Aavegotchi GHST Token	JCMPCVD08	20.83
489	Avalon Labs	TMW71HLQL	20.48
490	Kin	/	20.13
491	Alien Worlds Trilium	SGCHCLHT4	19.68
492	Bubblemaps	FJ8LK1Z36	19.50
493	Quack AI	/	19.37
494	Peanut the Squirrel	75D0KJ7WN	19.22
495	ZEROBASE	/	19.04
496	Zerebro	/	18.84
497	Liquid Staked ETHereum	/	18.80
498	Rubic	/	18.61
499	XL1	/	18.58
500	Aura	/	17.30
501	MultiBank Group	2HNNQLG24	16.66
502	Simons Cat	/	16.43
503	Sign	/	16.34
504	My Shell	/	16.28
505	deBridge	NT91TJWNC	15.95
506	Moo Deng	H3X85BK7M	15.80
507	BONDEX	/	15.58
508	Saros	/	14.62

#	Crypto-Asset Name	Crypto-Asset FFG	Energy consumption (kWh per calendar year)
509	PlaysOut	/	13.24
510	Keep3rV1	KDFPP8K07	13.19
511	Jupiter	LKWYN892M	13.16
512	TrueFi	XRDMKF3GK	12.48
513	Chill House	/	12.44
514	Eclipse	/	12.42
515	Banana For Scale	/	12.32
516	Soso Value	/	11.56
517	Act I The AI Prophecy	H4JMWRVR6	11.33
518	Yooldo	/	11.29
519	Multichain	KB7FDVF57	11.25
520	Bonfida	K7TKSGGHC	10.63
521	Goatseus Maximus	7FS1WX5VK	10.58
522	Zircuit	PRF8RNV4	10.49
523	Melania Meme	TC417FPLR	10.32
524	HONEY	L4T4M570J	10.12
525	Magic Eden	7987R7S6H	10.04
526	Unstable Coin	/	9.75
527	yellow ket	/	9.53
528	Ambire AdEx	/	9.51
529	Mubarak	WWW3TNHWT	9.14
530	ai16z	8SQN5VKWH	8.97
531	Stablr USD	MQ45TVC0V	8.72
532	Bless	/	8.46
533	swarms	30KCVXPWP	8.31

#	Crypto-Asset Name	Crypto-Asset FFG	Energy consumption (kWh per calendar year)
534	xU3O8	/	8.28
535	test griffain com	QXN32WLR2	8.19
536	cat in a dogs world	5Z3NS3NDB	7.98
537	Mira	/	7.91
538	RETARDIO	/	7.87
539	Lava Network	/	7.74
540	Theoriq Token	VZPKBZ5KV	7.66
541	Gmt	/	7.49
542	FIGHT	/	7.46
543	Augur Reputation Token	B6CQ0H4PC	7.30
544	Parcl	JPJ2QRH6R	7.25
545	Quantoz EURQ	/	7.02
546	Alchemist AI	/	6.98
547	Huma Finance	PPPSTQ5M9	6.96
548	Neiro	Q4TK4Q00M	6.59
549	StaFi	3HNNH358VV	6.45
550	DOGS	JTT6RNXDG	6.45
551	Hamster Kombat	S770D4DST	6.45
552	NOT	2W30TD6D9	6.45
553	Lock In	/	6.44
554	UNFI	MBQSB4WDK	6.23
555	MYX Finance	/	6.15
556	Aventus	WDSRWS0CT	6.10
557	Forest Protocol	/	5.91
558	BOB	8NRRNPFBG	5.89

#	Crypto-Asset Name	Crypto-Asset FFG	Energy consumption (kWh per calendar year)
559	Robonomics	/	5.74
560	Balance	/	5.69
561	ROOK	NJP8NH5JB	5.53
562	Almanak	/	5.46
563	SUKU	1M1LPK251	5.46
564	Zeus Network	/	5.46
565	Avantis	DGJJGJJPB	5.37
566	OLAXB	/	5.28
567	SOON	/	5.09
568	Oxygen	/	5.03
569	CARV	/	5.02
570	Bifrost	/	4.96
571	Dai Token	R5GCQW24K	4.77
572	PlayDapp	4XC8CV8ZN	4.68
573	Test	/	4.45
574	Toshi	WT9GJ1K9R	4.40
575	Coin98	HP7M2N1QF	4.24
576	Drift	6RVP9P5TB	3.90
577	Moonchain	/	3.84
578	B3	BPLSKNPD9	3.82
579	Squid	/	3.80
580	Housecoin	/	3.78
581	SatLayer	/	3.77
582	Tensor	NTJJ182D7	3.66
583	Wingbits	/	3.65

#	Crypto-Asset Name	Crypto-Asset FFG	Energy consumption (kWh per calendar year)
584	PONKE	DJLRN98WQ	3.56
585	Pipe Network	/	3.50
586	SelfKey	5GHXJSGXK	3.47
587	Corn	/	3.40
588	tokenbot	B9BF88ZXP	3.35
589	elizaOS	/	3.26
590	FWOG	ZLJGJG83S	3.16
591	Warden	/	3.11
592	SIGMA	/	3.09
593	Maple	/	3.05
594	Keeta	F2RB3TCSQ	3.02
595	Degen	253CXJJ4H	2.85
596	USDSM	MW2GQD34J	2.84
597	titcoin	/	2.79
598	Checkmate	/	2.64
599	Cheems Token	/	2.51
600	Zeta	/	2.47
601	KAITO	Z3JGDP628	2.47
602	Infinity Ground	/	2.46
603	Sonic SVM	WLR4VX2XB	2.40
604	Apu Apustajasee	/	2.34
605	Solayer	PWG559QJQ	2.32
606	Saber	/	2.30
607	Gari	3F283FQ8S	2.30
608	Swipe	J82048MMV	2.29

#	Crypto-Asset Name	Crypto-Asset FFG	Energy consumption (kWh per calendar year)
609	Stablr Euro	R3QQ9C02D	2.27
610	NodeOps	KWK003WN7	2.25
611	Cookie DAO	DBRTW3FF8	2.24
612	Loaded Lions	QW6T8C2WG	2.20
613	Oobit	J4L4TPV1F	1.82
614	Nobody Sausage	Q2BLJNF8	1.78
615	RollX	/	1.76
616	REPP0	WLTC7T1M9	1.71
617	Sapien	NFF56QPXF	1.65
618	Superform	7T48CVBDK	1.64
619	Sport.Fun	/	1.56
620	Edge	JG63F041Q	1.54
621	Alkimi	54CWD3QSG	1.35
622	idos	/	1.30
623	Elixir	/	1.28
624	375ai	8R2R6HDFB	1.24
625	Soma Finance	/	1.21
626	Eva AI	/	1.13
627	RIZE	/	1.09
628	michi (SOL)	/	0.99
629	Giza	/	0.99
630	Sogni AI	/	0.90
631	Solv Protocol	/	0.88
632	Kula	GJ87BVCC8	0.87
633	AUKI	/	0.86

#	Crypto-Asset Name	Crypto-Asset FFG	Energy consumption (kWh per calendar year)
634	Intuition	FRWJ9SD62	0.86
635	Astra Nova	/	0.79
636	Stool Prisdente	/	0.67
637	Gensokishi Metaver	/	0.64
638	Merit Circle	KWRXWPTP2	0.64
639	AB	DTLFMQT4L	0.62
640	Sidekick	RW7GP3S5G	0.61
641	Codatta	/	0.58
642	xMoney	/	0.57
643	Abc Labs	/	0.57
644	CF Large Cap Index	/	0.57
645	Boost	/	0.50
646	CUDIS	/	0.48
647	Step Finance	/	0.45
648	Rayls	/	0.43
649	Term Finance	/	0.43
650	Particle Network	/	0.36
651	Xterio	/	0.35
652	Mango	3DZBQXGQ9	0.33
653	UXLINK Token	2DJT1QH0L	0.31
654	Fidelity Digital Interest Token	TN49KLP0X	0.28
655	Virtua	V1S5320J7	0.28
656	beamable	/	0.23
657	Odos	/	0.22
658	FAI	71ZS4MW47	0.22

#	Crypto-Asset Name	Crypto-Asset FFG	Energy consumption (kWh per calendar year)
659	Planck	/	0.22
660	Ghiblification	/	0.19
661	Yala Stablecoin	/	0.14
662	WorldMobileToken	8HB341MWF	0.11
663	GreenSatoshiToken	PBSSTVTM0	0.11
664	Syndicate	RT0HHR81T	0.09
665	SPICE	/	0.09
666	Impossible Cloud Network	/	0.08
667	SCOR	/	0.08
668	EstateX	/	0.07
669	Assisterr Token	Q19R77107	0.06
670	Infrared	/	0.03
671	Hybrid	/	0.03
672	FreeStyle Classic	/	0.02
673	Moonveil	/	0.02
674	Backstage	4ZQGRG6CC	0.01
675	Ls Solana	/	0.01
676	Travala.com Token	CC6CCR7SG	0.01
677	boss_token	/	0.01
678	SaucerSwap	/	0.00
679	Unite	/	0.00
680	Genshiro	/	0.00
681	chillhouse	/	0.00
682	baby_shhark_universe	/	0.00
683	Bitget Token	6C8D688HQ	0.00

#	Crypto-Asset Name	Crypto-Asset FFG	Energy consumption (kWh per calendar year)
684	Black Mirror Experience Token	9D7L206V0	0.00
685	Crust Shadow	/	0.00
686	Envision	/	0.00
687	Linkka	/	0.00
688	MoonTools	/	0.00
689	My Neighbor Alice	1S7VZCTZL	0.00
690	Raiin	5TNGTBJ2D	0.00
691	Ren	WW93P3CRN	0.00
692	Revive	/	0.00
693	Space	FHQ1V6GXX	0.00
694	Traceability Chain	/	0.00

Sustainability indicators



Bitcoin

BTC | V15WLZJMF

Quantitative information

Quantitative sustainability indicators for Bitcoin

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Bitcoin	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	156787610364.17752	kWh/a
S.10 Renewable energy consumption	34.4781471084	%
S.11 Energy intensity	4.48089	kWh
S.12 Scope 1 DLT GHG emissions – Controlled	0.00000	tCO ₂ e
S.13 Scope 2 DLT GHG emissions – Purchased	64595877.93553	tCO ₂ e
S.14 GHG intensity	1.84611	kgCO ₂ e

Qualitative information

S.4 Consensus Mechanism

Bitcoin is present on the following networks: Bitcoin, Lightning Network.

The Bitcoin blockchain network uses a consensus mechanism called Proof of Work (PoW) to achieve distributed consensus among its nodes. Here's a detailed breakdown of how it works:

Core Concepts:

1. Nodes and Miners:

- Nodes: Nodes are computers running the Bitcoin software that participate in the network by validating transactions and blocks.

- Miners: Special nodes, called miners, perform the work of creating new blocks by solving complex cryptographic puzzles.
- 2. Blockchain: The blockchain is a public ledger that records all Bitcoin transactions in a series of blocks. Each block contains a list of transactions, a reference to the previous block (hash), a timestamp, and a nonce (a random number used once).
- 3. Hash Functions: Bitcoin uses the SHA-256 cryptographic hash function to secure the data in blocks. A hash function takes input data and produces a fixed-size string of characters, which appears random.

Consensus Process:

1. Transaction Validation: Transactions are broadcast to the network and collected by miners into a block. Each transaction must be validated by nodes to ensure it follows the network's rules, such as correct signatures and sufficient funds.
2. Mining and Block Creation:
 - Nonce and Hash Puzzle: Miners compete to find a nonce that, when combined with the block's data and passed through the SHA-256 hash function, produces a hash that is less than a target value. This target value is adjusted periodically to ensure that blocks are mined approximately every 10 minutes.
 - Proof of Work: The process of finding this nonce is computationally intensive and requires significant energy and resources. Once a miner finds a valid nonce, they broadcast the newly mined block to the network.
3. Block Validation and Addition: Other nodes in the network verify the new block to ensure the hash is correct and that all transactions within the block are valid. If the block is valid, nodes add it to their copy of the blockchain and the process starts again with the next block.
4. Chain Consensus: The longest chain (the chain with the most accumulated proof of work) is considered the valid chain by the network. Nodes always work to extend the longest valid chain. In the case of multiple valid chains (forks), the network will eventually resolve the fork by continuing to mine and extending one chain until it becomes longer.

For the calculation of the corresponding indicators, the additional energy consumption and the transactions of the Lightning Network have also been taken into account, as this reflects the categorization of the Digital Token Identifier Foundation for the respective functionally fungible group ("FFG") relevant for this reporting. If one would exclude these transactions, the respective estimations regarding the "per transaction" count would be substantially higher.

S.5 Incentive Mechanisms and Applicable Fees

Bitcoin is present on the following networks: Bitcoin, Lightning Network.

The Bitcoin blockchain relies on a Proof-of-Work (PoW) consensus mechanism to ensure the security and integrity of transactions. This mechanism involves economic incentives for miners and a fee structure that supports network sustainability:

Incentive Mechanisms:

1. Block Rewards:
 - Newly Minted Bitcoins: Miners are incentivized by block rewards, which consist of newly created bitcoins awarded to the miner who successfully mines a new block. Initially, the block reward was 50 BTC, but it halves every 210,000 blocks (approx. every four years) in an event known as the "halving."
 - Halving and Scarcity: The halving mechanism ensures that the total supply of Bitcoin is capped at 21 million, creating scarcity and potentially increasing value over time.

2. Transaction Fees:

- User Fees: Each transaction includes a fee paid by the user to incentivize miners to include their transaction in a block. These fees are crucial, especially as the block reward diminishes over time due to halving.
- Fee Market: Transaction fees are determined by the market, where users compete to have their transactions processed quickly. Higher fees typically result in faster inclusion in a block, especially during periods of high network congestion.

For the calculation of the corresponding indicators, the additional energy consumption and the transactions of the Lightning Network have also been taken into account, as this reflects the categorization of the Digital Token Identifier Foundation for the respective functionally fungible group ("FFG") relevant for this reporting. If one would exclude these transactions, the respective estimations regarding the "per transaction" count would be substantially higher

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

For the calculation of energy consumptions, the so called 'top-down' approach is being used, within which an economic calculation of the miners is assumed. Miners are persons or devices that actively participate in the proof-of-work consensus mechanism. The miners are considered to be the central factor for the energy consumption of the network. Hardware is pre-selected based on the consensus mechanism's hash algorithm: SHA-256. A current profitability threshold is determined on the basis of the revenue and cost structure for mining operations. Only Hardware above the profitability threshold is considered for the network. The energy consumption of the network can be determined by taking into account the distribution for the hardware, the efficiency levels for operating the hardware and on-chain information regarding the miners' revenue opportunities. If significant use of merge mining is known, this is taken into account. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

To determine the energy consumption of a token, the energy consumption of the network(s) lightning_network is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

S.15 Key energy sources and methodologies

To determine the proportion of renewable energy usage, the locations of the nodes are to be determined using public information sites, open-source crawlers and crawlers developed in-house. If

no information is available on the geographic distribution of the nodes, reference networks are used which are comparable in terms of their incentivization structure and consensus mechanism. This geo-information is merged with public information from Our World in Data, see citation. The intensity is calculated as the marginal energy cost wrt. one more transaction.

Ember (2025); Energy Institute - Statistical Review of World Energy (2024) - with major processing by Our World in Data. "Share of electricity generated by renewables - Ember and Energy Institute" [dataset]. Ember, "Yearly Electricity Data Europe"; Ember, "Yearly Electricity Data"; Energy Institute, "Statistical Review of World Energy" [original data]. Retrieved from <https://ourworldindata.org/grapher/share-electricity-renewables>.

S.16 Key GHG sources and methodologies

To determine the GHG Emissions, the locations of the nodes are to be determined using public information sites, open-source crawlers and crawlers developed in-house. If no information is available on the geographic distribution of the nodes, reference networks are used which are comparable in terms of their incentivization structure and consensus mechanism. This geo-information is merged with public information from Our World in Data, see citation. The intensity is calculated as the marginal emission wrt. one more transaction.

Ember (2025); Energy Institute - Statistical Review of World Energy (2024) - with major processing by Our World in Data. "Carbon intensity of electricity generation - Ember and Energy Institute" [dataset]. Ember, "Yearly Electricity Data Europe"; Ember, "Yearly Electricity Data"; Energy Institute, "Statistical Review of World Energy" [original data]. Retrieved from <https://ourworldindata.org/grapher/carbon-intensity-electricity> Licenced under CC BY 4.0.



Dogecoin

DOGE | 35PLJP6J7

Quantitative information

Quantitative sustainability indicators for Dogecoin

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Dogecoin	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	4913777208.12082	kWh/a
S.10 Renewable energy consumption	34.4781471084	%
S.11 Energy intensity	0.38626	kWh
S.12 Scope 1 DLT GHG emissions – Controlled	0.00000	tCO ₂ e
S.13 Scope 2 DLT GHG emissions – Purchased	2024456.85600	tCO ₂ e
S.14 GHG intensity	0.15914	kgCO ₂ e

Qualitative information

S.4 Consensus Mechanism

Dogecoin (DOGE) uses a Proof of Work (PoW) consensus mechanism, similar to Bitcoin, but with some key differences.

Core Concepts :

1. Nodes and Miners:

- Nodes: Nodes in the Dogecoin network are computers running the Dogecoin software. They validate transactions, maintain the blockchain, and relay information across the network.
- Miners: Miners are specialized nodes that solve cryptographic puzzles to create new blocks and validate transactions. This process is known as mining.

2. Blockchain: The blockchain is a public ledger that records all Dogecoin transactions in a series of blocks. Each block contains a list of transactions, a reference to the previous block (hash), a timestamp, and a nonce (a random number used once).
3. Hash Functions: Dogecoin uses the Scrypt hash function, which is different from Bitcoin's SHA-256. Scrypt is designed to be more memory-intensive, making it more resistant to ASIC (Application-Specific Integrated Circuit) mining and encouraging more widespread participation by regular users with less powerful hardware.

Consensus Process:

1. Transaction Validation: Transactions are broadcast to the network and collected by miners into a block. Each transaction is validated by nodes to ensure it adheres to the network's rules, such as correct signatures and sufficient funds.
2. Mining and Block Creation:
 - Nonce and Hash Puzzle: Miners compete to find a nonce that, when combined with the block's data and passed through the Scrypt hash function, produces a hash below a certain target value. This target value is adjusted periodically to maintain a consistent block creation time.
 - Proof of Work: Finding a valid nonce requires significant computational effort. Once a miner finds a valid nonce, the new block is broadcast to the network.
3. Block Validation and Addition: Other nodes in the network verify the new block to ensure the hash is correct and that all transactions within the block are valid. If the block is valid, nodes add it to their copy of the blockchain, and the process repeats for the next block.
4. Chain Consensus: The longest chain (the chain with the most accumulated proof of work) is considered the valid chain by the network. Nodes always work to extend the longest valid chain. In the case of multiple valid chains (forks), the network will eventually resolve the fork by continuing to mine and extending one chain until it becomes longer.

Security and Economic Incentives:

1. Incentives for Miners:
 - Block Rewards: Miners are incentivized to participate in the network by receiving block rewards. Initially, Dogecoin had a variable block reward, but now it offers a fixed reward of 10,000 DOGE per block.
 - Transaction Fees: Miners also collect transaction fees from the transactions included in the block. These fees provide an additional incentive for miners.
2. Security:
 - Hash Rate and Difficulty: The security of the Dogecoin network is directly proportional to its hash rate, the total computational power of all miners. A higher hash rate means more difficult and costly attacks.
 - 51% Attack: An attacker would need to control more than 50% of the network's hash rate to double-spend or rewrite parts of the blockchain. The cost and resource requirement for such an attack make it impractical for a sufficiently large and decentralized network like Dogecoin.
3. Merged Mining: Dogecoin supports merged mining with Litecoin (LTC). This means miners can mine both Dogecoin and Litecoin simultaneously without additional computational effort. This enhances the security of both networks by pooling their hash rates.

S.5 Incentive Mechanisms and Applicable Fees

Dogecoin uses a Proof of Work (PoW) consensus mechanism to ensure network security and integrity, relying on economic incentives for miners and transaction fees from users.

Incentive Mechanisms

1. Miners:

- Block Rewards: Miners receive block rewards for successfully mining new blocks. Initially, Dogecoin had a variable block reward, but it now offers a fixed reward of 10,000 DOGE per block. These rewards are a primary incentive for miners to invest in the computational power necessary to secure the network.
- Transaction Fees: In addition to block rewards, miners also earn transaction fees from the transactions they include in the blocks they mine. Although Dogecoin's transaction fees are typically low, they still provide an important supplementary income for miners.
- Merged Mining: Dogecoin supports merged mining with Litecoin, allowing miners to simultaneously mine both cryptocurrencies without additional computational effort. This process increases the hash rate and security of both networks by pooling their resources.

2. Security:

- Hash Rate and Difficulty: The security of Dogecoin's network is directly related to its hash rate, the total computational power used by all miners. A higher hash rate makes the network more resistant to attacks. The mining difficulty adjusts periodically to ensure that blocks are mined approximately every minute, maintaining network stability.
- 51% Attack Deterrence: Controlling more than 50% of the network's hash rate to perform a 51% attack is costly and difficult. The significant computational power and energy required make such attacks impractical for a large and decentralized network like Dogecoin.

Fees Applicable on the Dogecoin Blockchain:

1. Transaction Fees:

- Flat Fee Structure: Dogecoin uses a relatively simple fee structure. The typical transaction fee is 1 DOGE per kilobyte of transaction data. This low fee is one of Dogecoin's appeals, making it suitable for small and micro-transactions.
- Incentives for Faster Processing: Although transaction fees are generally low, users can choose to pay higher fees to incentivize miners to include their transactions in the next block, ensuring faster processing times.

2. Mining Rewards:

- Block Subsidy: The fixed block reward of 10,000 DOGE incentivizes miners to continue securing the network. This reward will persist as Dogecoin does not have a maximum supply cap, ensuring continuous incentives for miners.
- Fee Inclusion: Besides the block subsidy, the inclusion of transaction fees provides an additional, albeit smaller, incentive for miners to process transactions efficiently.

S.9 Energy consumption sources and methodologies

For the calculation of energy consumptions, the so called 'top-down' approach is being used, within which an economic calculation of the miners is assumed. Miners are persons or devices that actively participate in the proof-of-work consensus mechanism. The miners are considered to be the central factor for the energy consumption of the network. Hardware is pre-selected based on the consensus mechanism's hash algorithm: Scrypt. A current profitability threshold is determined on the basis of the revenue and cost structure for mining operations. Only Hardware above the profitability threshold is considered for the network. The energy consumption of the network can be determined by taking into account the distribution for the hardware, the efficiency levels for operating the hardware and on-chain information regarding the miners' revenue opportunities. If significant use of merge mining is known, this is taken into account. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on

data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

S.15 Key energy sources and methodologies

To determine the proportion of renewable energy usage, the locations of the nodes are to be determined using public information sites, open-source crawlers and crawlers developed in-house. If no information is available on the geographic distribution of the nodes, reference networks are used which are comparable in terms of their incentivization structure and consensus mechanism. This geo-information is merged with public information from Our World in Data, see citation. The intensity is calculated as the marginal energy cost wrt. one more transaction.

Ember (2025); Energy Institute - Statistical Review of World Energy (2024) - with major processing by Our World in Data. "Share of electricity generated by renewables - Ember and Energy Institute" [dataset]. Ember, "Yearly Electricity Data Europe"; Ember, "Yearly Electricity Data"; Energy Institute, "Statistical Review of World Energy" [original data]. Retrieved from <https://ourworldindata.org/grapher/share-electricity-renewables>.

S.16 Key GHG sources and methodologies

To determine the GHG Emissions, the locations of the nodes are to be determined using public information sites, open-source crawlers and crawlers developed in-house. If no information is available on the geographic distribution of the nodes, reference networks are used which are comparable in terms of their incentivization structure and consensus mechanism. This geo-information is merged with public information from Our World in Data, see citation. The intensity is calculated as the marginal emission wrt. one more transaction.

Ember (2025); Energy Institute - Statistical Review of World Energy (2024) - with major processing by Our World in Data. "Carbon intensity of electricity generation - Ember and Energy Institute" [dataset]. Ember, "Yearly Electricity Data Europe"; Ember, "Yearly Electricity Data"; Energy Institute, "Statistical Review of World Energy" [original data]. Retrieved from <https://ourworldindata.org/grapher/carbon-intensity-electricity> Licenced under CC BY 4.0.



Quantitative information

Quantitative sustainability indicators for Kaspa

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Kaspa	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	2831162818.95504	kWh/a
S.10 Renewable energy consumption	34.4781471084	%
S.11 Energy intensity	0.77566	kWh
S.12 Scope 1 DLT GHG emissions – Controlled	0.00000	tCO2e
S.13 Scope 2 DLT GHG emissions – Purchased	1166427.93040	tCO2e
S.14 GHG intensity	0.31957	kgCO2e

Qualitative information

S.4 Consensus Mechanism

The Kaspa blockchain uses a unique Proof-of-Work consensus mechanism called the GHOSTDAG (Greedy Heaviest Observed Subtree Directed Acyclic Graph) protocol. GHOSTDAG is designed to offer high throughput, low latency, and secure finality, addressing scalability and performance challenges typically faced by traditional blockchain systems.

Key Features of Kaspa's Consensus Mechanism:

1. Directed Acyclic Graph (DAG) Structure: Kaspa operates on a DAG, allowing multiple blocks to be produced simultaneously and linked together in a way that eliminates the need for a single linear chain. This allows for parallel block production, significantly increasing the overall throughput of the network. Unlike traditional blockchains where only the longest chain is considered valid, Kaspa allows blocks to coexist, increasing transaction throughput and scalability.

2. GHOSTDAG Protocol: The GHOSTDAG protocol resolves the challenges that arise in DAG-based networks by ensuring a consistent ordering of blocks. It uses the concept of "growing" blocks from the heaviest observed subtree.

S.5 Incentive Mechanisms and Applicable Fees

Kaspa employs a Proof-of-Work (PoW) consensus mechanism to secure its network and incentivize participants. Miners validate transactions and add new blocks to the DAG (Directed Acyclic Graph) structure, earning rewards for their efforts.

Incentive Mechanism:

1. Mining Rewards:

- Block Rewards: Miners receive newly minted KAS tokens as rewards for successfully mining new blocks. The block reward decreases over time, following a predetermined schedule, to control the total supply of KAS tokens.
- Transaction Fees: In addition to block rewards, miners earn transaction fees from the transactions included in the blocks they mine. Users pay these fees to incentivize miners to prioritize their transactions.

2. Transaction Fees:

Users pay transaction fees to have their transactions processed and included in the blockchain. These fees are determined by the size of the transaction and the current network conditions. Higher fees can expedite transaction inclusion, especially during periods of high network activity.

Applicable Fees:

1. Transaction Fees:

Transaction fees are calculated based on the size of the transaction, measured in bytes. The fee rate is dynamic and adjusts according to network congestion and demand. Users can estimate appropriate fee rates using tools like the Rusty Kaspa node's `getFeeEstimate()` RPC method, which provides real-time fee rate suggestions based on current network conditions.

2. Fee Rate and Quality of Service (QoS):

The fee rate influences the priority of transactions. A higher fee rate increases the likelihood of a transaction being included in the next block, ensuring faster confirmation times. Kaspa's fee structure allows users to adjust their fee rates to balance cost and transaction speed according to their preferences.

S.9 Energy consumption sources and methodologies

For the calculation of energy consumptions, the so called 'top-down' approach is being used, within which an economic calculation of the miners is assumed. Miners are persons or devices that actively participate in the proof-of-work consensus mechanism. The miners are considered to be the central factor for the energy consumption of the network. Hardware is pre-selected based on the consensus mechanism's hash algorithm: KHeavyhash. A current profitability threshold is determined on the basis of the revenue and cost structure for mining operations. Only Hardware above the profitability threshold is considered for the network. The energy consumption of the network can be determined by taking into account the distribution for the hardware, the efficiency levels for operating the hardware and on-chain information regarding the miners' revenue opportunities. If significant use of merge mining is known, this is taken into account. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the

number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

S.15 Key energy sources and methodologies

To determine the proportion of renewable energy usage, the locations of the nodes are to be determined using public information sites, open-source crawlers and crawlers developed in-house. If no information is available on the geographic distribution of the nodes, reference networks are used which are comparable in terms of their incentivization structure and consensus mechanism. This geo-information is merged with public information from Our World in Data, see citation. The intensity is calculated as the marginal energy cost wrt. one more transaction.

Ember (2025); Energy Institute - Statistical Review of World Energy (2024) - with major processing by Our World in Data. "Share of electricity generated by renewables - Ember and Energy Institute" [dataset]. Ember, "Yearly Electricity Data Europe"; Ember, "Yearly Electricity Data"; Energy Institute, "Statistical Review of World Energy" [original data]. Retrieved from <https://ourworldindata.org/grapher/share-electricity-renewables>.

S.16 Key GHG sources and methodologies

To determine the GHG Emissions, the locations of the nodes are to be determined using public information sites, open-source crawlers and crawlers developed in-house. If no information is available on the geographic distribution of the nodes, reference networks are used which are comparable in terms of their incentivization structure and consensus mechanism. This geo-information is merged with public information from Our World in Data, see citation. The intensity is calculated as the marginal emission wrt. one more transaction.

Ember (2025); Energy Institute - Statistical Review of World Energy (2024) - with major processing by Our World in Data. "Carbon intensity of electricity generation - Ember and Energy Institute" [dataset]. Ember, "Yearly Electricity Data Europe"; Ember, "Yearly Electricity Data"; Energy Institute, "Statistical Review of World Energy" [original data]. Retrieved from <https://ourworldindata.org/grapher/carbon-intensity-electricity> Licenced under CC BY 4.0.



Quantitative information

Quantitative sustainability indicators for Litecoin

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Litecoin	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	721436732.60505	kWh/a
S.10 Renewable energy consumption	34.4781471084	%
S.11 Energy intensity	0.02873	kWh
S.12 Scope 1 DLT GHG emissions – Controlled	0.00000	tCO ₂ e
S.13 Scope 2 DLT GHG emissions – Purchased	297229.09233	tCO ₂ e
S.14 GHG intensity	0.01184	kgCO ₂ e

Qualitative information

S.4 Consensus Mechanism

Litecoin, like Bitcoin, uses Proof of Work (PoW) as its consensus mechanism, but with a few key differences:

1. **Script Hashing Algorithm:** Unlike Bitcoin's SHA-256 algorithm, Litecoin uses the Script hashing algorithm, which is more memory-intensive. This makes mining Litecoin more accessible to regular users and limits the advantages of specialized hardware (like ASICs) in the early years.
2. **Mining and Block Creation:** Miners compete to solve cryptographic puzzles and, upon success, add new blocks to the blockchain. This process involves solving the Script algorithm, which requires computational work. The first miner to solve the problem earns the block reward and transaction fees associated with the transactions in the block.
3. **Block Time:** Litecoin has a block time of 2.5 minutes, much faster than Bitcoin's 10 minutes. This means transactions confirm more quickly, increasing the overall network speed.

4. Block Reward Halving: Similar to Bitcoin, Litecoin has a block reward halving event approximately every four years. Initially, miners earned 50 LTC per block, but this reward decreases by half after each halving event. This process continues until the maximum supply of 84 million LTC is reached.
5. Difficulty Adjustment: Litecoin adjusts the mining difficulty approximately every 2,016 blocks (about every 3.5 days) to ensure that blocks continue to be mined at a consistent rate of 2.5 minutes per block, regardless of fluctuations in the total network hash rate.

S.5 Incentive Mechanisms and Applicable Fees

Litecoin, like Bitcoin, uses the Proof of Work (PoW) consensus mechanism to secure transactions and incentivize miners.

Incentive Mechanisms:

1. Mining Rewards:

Block Rewards: Miners are rewarded with Litecoin (LTC) for successfully mining new blocks. Initially, miners received 50 LTC per block, but this reward halves approximately every four years.

Transaction Fees: Miners also earn transaction fees from the transactions included in the blocks they mine. Users pay fees to have their transactions processed by miners, especially when they need faster confirmation times.

2. Halving:

The halving mechanism ensures that over time, fewer Litecoins are introduced into circulation, creating a deflationary model. This makes mining more valuable as the circulating supply becomes scarcer, incentivizing miners to continue participating in the network even as block rewards decrease.

3. Economic Security:

The cost of mining (e.g., hardware and electricity) provides a strong economic incentive for miners to act honestly. If miners attempt to cheat or attack the network, they risk losing the computational work they invested, as invalid blocks will be rejected by the network.

Fees on the Litecoin Blockchain:

- Transaction Fees: Litecoin users pay a transaction fee for each transaction, typically calculated in LTC per byte of transaction data. The fees are dynamic and vary based on network congestion.
- Low Fees: Litecoin is known for its relatively low transaction fees compared to other blockchains like Bitcoin, which makes it ideal for smaller transactions and micro-payments.
- Fee Redistribution: Collected transaction fees are distributed to miners as part of their rewards for validating transactions and securing the network.

S.9 Energy consumption sources and methodologies

For the calculation of energy consumptions, the so called 'top-down' approach is being used, within which an economic calculation of the miners is assumed. Miners are persons or devices that actively participate in the proof-of-work consensus mechanism. The miners are considered to be the central factor for the energy consumption of the network. Hardware is pre-selected based on the consensus mechanism's hash algorithm: Scrypt. A current profitability threshold is determined on the basis of the revenue and cost structure for mining operations. Only Hardware above the profitability threshold is considered for the network. The energy consumption of the network can be determined by taking into account the distribution for the hardware, the efficiency levels for operating the hardware and on-chain information regarding the miners' revenue opportunities. If significant use of merge mining is known, this is taken into account. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all

implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

S.15 Key energy sources and methodologies

To determine the proportion of renewable energy usage, the locations of the nodes are to be determined using public information sites, open-source crawlers and crawlers developed in-house. If no information is available on the geographic distribution of the nodes, reference networks are used which are comparable in terms of their incentivization structure and consensus mechanism. This geo-information is merged with public information from Our World in Data, see citation. The intensity is calculated as the marginal energy cost wrt. one more transaction.

Ember (2025); Energy Institute - Statistical Review of World Energy (2024) - with major processing by Our World in Data. "Share of electricity generated by renewables - Ember and Energy Institute" [dataset]. Ember, "Yearly Electricity Data Europe"; Ember, "Yearly Electricity Data"; Energy Institute, "Statistical Review of World Energy" [original data]. Retrieved from <https://ourworldindata.org/grapher/share-electricity-renewables>.

S.16 Key GHG sources and methodologies

To determine the GHG Emissions, the locations of the nodes are to be determined using public information sites, open-source crawlers and crawlers developed in-house. If no information is available on the geographic distribution of the nodes, reference networks are used which are comparable in terms of their incentivization structure and consensus mechanism. This geo-information is merged with public information from Our World in Data, see citation. The intensity is calculated as the marginal emission wrt. one more transaction.

Ember (2025); Energy Institute - Statistical Review of World Energy (2024) - with major processing by Our World in Data. "Carbon intensity of electricity generation - Ember and Energy Institute" [dataset]. Ember, "Yearly Electricity Data Europe"; Ember, "Yearly Electricity Data"; Energy Institute, "Statistical Review of World Energy" [original data]. Retrieved from <https://ourworldindata.org/grapher/carbon-intensity-electricity> Licenced under CC BY 4.0.



Quantitative information

Quantitative sustainability indicators for Bitcoin Cash

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Bitcoin Cash	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	636995160.49730	kWh/a
S.10 Renewable energy consumption	34.4781471084	%
S.11 Energy intensity	0.06730	kWh
S.12 Scope 1 DLT GHG emissions – Controlled	0.00000	tCO ₂ e
S.13 Scope 2 DLT GHG emissions – Purchased	262439.49721	tCO ₂ e
S.14 GHG intensity	0.02773	kgCO ₂ e

Qualitative information

S.4 Consensus Mechanism

Bitcoin Cash is present on the following networks: Bitcoin Cash, Smart Bitcoin Cash.

The Bitcoin Cash blockchain network uses a consensus mechanism called Proof of Work (PoW) to achieve distributed consensus among its nodes. It originated from the Bitcoin blockchain, hence has the same consensus mechanisms but with a larger block size, which makes it more centralized.

Core Concepts:

1. Nodes and Miners:

- Nodes: Nodes are computers running the Bitcoin Cash software that participate in the network by validating transactions and blocks.
- Miners: Special nodes, called miners, perform the work of creating new blocks by solving complex cryptographic puzzles.

2. Blockchain: The blockchain is a public ledger that records all Bitcoin Cash transactions in a series of blocks. Each block contains a list of transactions, a reference to the previous block (hash), a timestamp, and a nonce (a random number used once).
3. Hash Functions: Bitcoin Cash uses the SHA-256 cryptographic hash function to secure the data in blocks. A hash function takes input data and produces a fixed-size string of characters, which appears random.

Consensus Process:

1. Transaction Validation: Transactions are broadcast to the network and collected by miners into a block. Each transaction must be validated by nodes to ensure it follows the network's rules, such as correct signatures and sufficient funds.
2. Mining and Block Creation:
 - Nonce and Hash Puzzle: Miners compete to find a nonce that, when combined with the block's data and passed through the SHA-256 hash function, produces a hash that is less than a target value. This target value is adjusted periodically to ensure that blocks are mined approximately every 10 minutes.
 - Proof of Work: The process of finding this nonce is computationally intensive and requires significant energy and resources. Once a miner finds a valid nonce, they broadcast the newly mined block to the network.
3. Block Validation and Addition:
 - Other nodes in the network verify the new block to ensure the hash is correct and that all transactions within the block are valid.
 - If the block is valid, nodes add it to their copy of the blockchain and the process starts again with the next block.
4. Chain Consensus:
 - The longest chain (the chain with the most accumulated proof of work) is considered the valid chain by the network. Nodes always work to extend the longest valid chain.
 - In the case of multiple valid chains (forks), the network will eventually resolve the fork by continuing to mine and extending one chain until it becomes longer.

Smart Bitcoin Cash (SmartBCH) operates as a sidechain to Bitcoin Cash (BCH), leveraging a hybrid consensus mechanism combining Proof of Work (PoW) compatibility and validator-based validation.

Core Components:

- Proof of Work Compatibility: SmartBCH relies on Bitcoin Cash's PoW for settlement and security, ensuring robust integration with BCH's main chain. SHA-256 Algorithm: Uses the same SHA-256 hashing algorithm as Bitcoin Cash, allowing compatibility with existing mining hardware and infrastructure.
- Consensus via Validators: Transactions within SmartBCH are validated by a set of validators chosen based on staking and operational efficiency. This hybrid approach combines the hash power of PoW with a validator-based model to enhance scalability and flexibility.

S.5 Incentive Mechanisms and Applicable Fees

Bitcoin Cash is present on the following networks: Bitcoin Cash, Smart Bitcoin Cash.

The Bitcoin Cash blockchain operates on a Proof-of-Work (PoW) consensus mechanism, with incentives and fee structures designed to support miners and the overall network's sustainability:

Incentive Mechanism:

1. Block Rewards:

- Newly Minted Bitcoins: Miners receive a block reward, which consists of newly created bitcoins for successfully mining a new block. Initially, the reward was 50 BCH, but it halves approximately every four years in an event known as the "halving."
- Halving and Scarcity: The halving ensures that the total supply of Bitcoin Cash is capped at 21 million BCH, creating scarcity that could drive up value over time.

2. Transaction Fees:

- User Fees: Each transaction includes a fee, paid by users, that incentivizes miners to include the transaction in a new block. This fee market becomes increasingly important as block rewards decrease over time due to the halving events.
- Fee Market: Transaction fees are market-driven, with users competing to get their transactions included quickly. Higher fees lead to faster transaction processing, especially during periods of high network congestion.

Applicable Fees:

1. Transaction Fees:

Bitcoin Cash transactions require a small fee, paid in BCH, which is determined by the transaction's size and the network demand at the time. These fees are crucial for the continued operation of the network, particularly as block rewards decrease over time due to halvings.

2. Fee Structure During High Demand:

In times of high congestion, users may choose to increase their transaction fees to prioritize their transactions for faster processing. The fee structure ensures that miners are incentivized to prioritize higher-fee transactions.

SmartBCH's incentive model encourages validators and network participants to secure the sidechain and process transactions efficiently.

Incentive Mechanisms:

- Validator Rewards: Validators are rewarded with a share of transaction fees for their role in validating transactions and maintaining the network.
- Economic Alignment: The system incentivizes validators to act in the network's best interest, ensuring stability and fostering adoption through economic alignment.

Applicable Fees:

Transaction Fees: Fees for transactions on SmartBCH are paid in BCH, ensuring seamless integration with the Bitcoin Cash ecosystem.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital

Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

For the calculation of energy consumptions, the so called 'top-down' approach is being used, within which an economic calculation of the miners is assumed. Miners are persons or devices that actively participate in the proof-of-work consensus mechanism. The miners are considered to be the central factor for the energy consumption of the network. Hardware is pre-selected based on the consensus mechanism's hash algorithm: SHA-256. A current profitability threshold is determined on the basis of the revenue and cost structure for mining operations. Only Hardware above the profitability threshold is considered for the network. The energy consumption of the network can be determined by taking into account the distribution for the hardware, the efficiency levels for operating the hardware and on-chain information regarding the miners' revenue opportunities. If significant use of merge mining is known, this is taken into account. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

S.15 Key energy sources and methodologies

To determine the proportion of renewable energy usage, the locations of the nodes are to be determined using public information sites, open-source crawlers and crawlers developed in-house. If no information is available on the geographic distribution of the nodes, reference networks are used which are comparable in terms of their incentivization structure and consensus mechanism. This geo-information is merged with public information from Our World in Data, see citation. The intensity is calculated as the marginal energy cost wrt. one more transaction.

Ember (2025); Energy Institute - Statistical Review of World Energy (2024) - with major processing by Our World in Data. "Share of electricity generated by renewables - Ember and Energy Institute" [dataset]. Ember, "Yearly Electricity Data Europe"; Ember, "Yearly Electricity Data"; Energy Institute, "Statistical Review of World Energy" [original data]. Retrieved from <https://ourworldindata.org/grapher/share-electricity-renewables>.

S.16 Key GHG sources and methodologies

To determine the GHG Emissions, the locations of the nodes are to be determined using public information sites, open-source crawlers and crawlers developed in-house. If no information is available on the geographic distribution of the nodes, reference networks are used which are comparable in terms of their incentivization structure and consensus mechanism. This geo-information is merged with public information from Our World in Data, see citation. The intensity is calculated as the marginal emission wrt. one more transaction.

Ember (2025); Energy Institute - Statistical Review of World Energy (2024) - with major processing by Our World in Data. "Carbon intensity of electricity generation - Ember and Energy Institute" [dataset]. Ember, "Yearly Electricity Data Europe"; Ember, "Yearly Electricity Data"; Energy Institute, "Statistical

Review of World Energy” [original data]. Retrieved from <https://ourworldindata.org/grapher/carbon-intensity-electricity> Licenced under CC BY 4.0.



Quantitative information

Quantitative sustainability indicators for Ethereum Classic Ether

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Ethereum Classic Ether	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	365312557.19589	kWh/a
S.10 Renewable energy consumption	34.4781471084	%
S.11 Energy intensity	0.08880	kWh
S.12 Scope 1 DLT GHG emissions – Controlled	0.00000	tCO ₂ e
S.13 Scope 2 DLT GHG emissions – Purchased	150507.33472	tCO ₂ e
S.14 GHG intensity	0.03659	kgCO ₂ e

Qualitative information

S.4 Consensus Mechanism

Ethereum Classic operates on a Proof of Work (PoW) consensus mechanism with the Etchash algorithm, which is a modified version of Ethash. This PoW model requires computational work from miners to validate transactions and secure the network.

Core Components:

- Proof of Work with Etchash Mining and Security: Miners use computational resources to perform the work necessary to add blocks to the blockchain, ensuring network security and resistance to tampering.
- Code is Law Philosophy Immutable Ledger: Following the 2016 DAO hack, Ethereum Classic upheld the “Code is Law” principle by retaining the unaltered blockchain. This commitment to immutability sets Ethereum Classic apart, preserving its original ledger without reverting transactions.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum Classic's incentive model combines block rewards and transaction fees, encouraging miner participation and network security.

Incentive Mechanisms:

1. Block Rewards:

Deflationary Supply Model: Miners receive ETC through block rewards, which decrease over time, similar to Bitcoin's model. This deflationary design supports ETC's value retention and incentivizes continued mining efforts.

2. Transaction Fees:

User-Paid Fees: Users pay fees in ETC for sending transactions, interacting with smart contracts, and utilizing dApps. These fees provide miners with additional income and help maintain network security.

Applicable Fees: Ethereum Classic's fee structure involves user-paid transaction fees to support network operations and discourage spam transactions.

1. Transaction Fees:

- User-Paid Fees: Every transaction on Ethereum Classic incurs a fee in ETC, based on the computational effort required. These fees ensure that resources are efficiently used and contribute to miner revenue.
- Dynamic Demand-Based Fees: Fees vary according to transaction complexity and network demand, helping maintain transaction efficiency and preventing congestion.

2. Mining Rewards:

Block Rewards Reduction: Block rewards, which are scheduled to reduce over time, provide a primary income source for miners. This model aims to balance network security while managing ETC's supply.

S.9 Energy consumption sources and methodologies

For the calculation of energy consumptions, the so called 'top-down' approach is being used, within which an economic calculation of the miners is assumed. Miners are persons or devices that actively participate in the proof-of-work consensus mechanism. The miners are considered to be the central factor for the energy consumption of the network. Hardware is pre-selected based on the consensus mechanism's hash algorithm: Etchash. A current profitability threshold is determined on the basis of the revenue and cost structure for mining operations. Only Hardware above the profitability threshold is considered for the network. The energy consumption of the network can be determined by taking into account the distribution for the hardware, the efficiency levels for operating the hardware and on-chain information regarding the miners' revenue opportunities. If significant use of merge mining is known, this is taken into account. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

S.15 Key energy sources and methodologies

To determine the proportion of renewable energy usage, the locations of the nodes are to be determined using public information sites, open-source crawlers and crawlers developed in-house. If no information is available on the geographic distribution of the nodes, reference networks are used which are comparable in terms of their incentivization structure and consensus mechanism. This geo-information is merged with public information from Our World in Data, see citation. The intensity is calculated as the marginal energy cost wrt. one more transaction.

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S.16 Key GHG sources and methodologies

To determine the GHG Emissions, the locations of the nodes are to be determined using public information sites, open-source crawlers and crawlers developed in-house. If no information is available on the geographic distribution of the nodes, reference networks are used which are comparable in terms of their incentivization structure and consensus mechanism. This geo-information is merged with public information from Our World in Data, see citation. The intensity is calculated as the marginal emission wrt. one more transaction.

Ember (2025); Energy Institute - Statistical Review of World Energy (2024) - with major processing by Our World in Data. "Carbon intensity of electricity generation - Ember and Energy Institute" [dataset]. Ember, "Yearly Electricity Data Europe"; Ember, "Yearly Electricity Data"; Energy Institute, "Statistical Review of World Energy" [original data]. Retrieved from <https://ourworldindata.org/grapher/carbon-intensity-electricity> Licenced under CC BY 4.0.



Quantitative information

Quantitative sustainability indicators for Zcash

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Zcash	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	322297564.15097	kWh/a
S.10 Renewable energy consumption	34.4781497369	%
S.11 Energy intensity	0.23542	kWh
S.12 Scope 1 DLT GHG emissions – Controlled	0.00000	tCO ₂ e
S.13 Scope 2 DLT GHG emissions – Purchased	132785.32246	tCO ₂ e
S.14 GHG intensity	0.09699	kgCO ₂ e

Qualitative information

S.4 Consensus Mechanism

Zcash is present on the following networks: Binance Smart Chain, Zcash.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be

selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Zcash operates on a Proof of Work (PoW) consensus mechanism, using the Equihash algorithm, which requires miners to dedicate computational power to validate transactions and produce new blocks.

Core Components:

1. Equihash PoW: Mining Process:

Miners compete to add new blocks by investing computational resources. This work serves as proof that miners are actively contributing to network security.

2. zk-SNARKs Integration:

Zcash utilizes zk-SNARKs (Zero-Knowledge Succinct Non-Interactive Arguments of Knowledge) to enable privacy-focused transactions. This cryptographic proof mechanism allows transactions to be verified without revealing sensitive information, such as the sender, recipient, or amount.

S.5 Incentive Mechanisms and Applicable Fees

Zcash is present on the following networks: Binance Smart Chain, Zcash.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Zcash incentivizes miners through block rewards and transaction fees, supporting both network security and operational efficiency.

Incentive Mechanisms:

1. Block Rewards: Miners receive ZEC as a reward for creating blocks, encouraging ongoing network support and computational investment.
2. Transaction Fees: Users pay transaction fees in ZEC for processing transactions, which miners receive in addition to block rewards.

Applicable Fees:

Enhanced Privacy and Shielded Transactions:

zk-SNARKs Efficiency: While shielded transactions offer privacy, they require more computational resources, which may slightly increase fees. Upgrades like Halo aim to enhance the efficiency of zk-SNARKs, keeping shielded transaction costs manageable.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

For the calculation of energy consumptions, the so called 'top-down' approach is being used, within which an economic calculation of the miners is assumed. Miners are persons or devices that actively participate in the proof-of-work consensus mechanism. The miners are considered to be the central factor for the energy consumption of the network. Hardware is pre-selected based on the consensus mechanism's hash algorithm: Equihash. A current profitability threshold is determined on the basis of the revenue and cost structure for mining operations. Only Hardware above the profitability threshold is considered for the network. The energy consumption of the network can be determined by taking into account the distribution for the hardware, the efficiency levels for operating the hardware and on-chain information regarding the miners' revenue opportunities. If significant use of merge mining is known, this is taken into account. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

To determine the energy consumption of a token, the energy consumption of the network(s) `binance_smart_chain` is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

S.15 Key energy sources and methodologies

To determine the proportion of renewable energy usage, the locations of the nodes are to be determined using public information sites, open-source crawlers and crawlers developed in-house. If no information is available on the geographic distribution of the nodes, reference networks are used which are comparable in terms of their incentivization structure and consensus mechanism. This geo-information is merged with public information from Our World in Data, see citation. The intensity is calculated as the marginal energy cost wrt. one more transaction.

Ember (2025); Energy Institute - Statistical Review of World Energy (2024) - with major processing by Our World in Data. "Share of electricity generated by renewables - Ember and Energy Institute" [dataset]. Ember, "Yearly Electricity Data Europe"; Ember, "Yearly Electricity Data"; Energy Institute, "Statistical Review of World Energy" [original data]. Retrieved from <https://ourworldindata.org/grapher/share-electricity-renewables>.

S.16 Key GHG sources and methodologies

To determine the GHG Emissions, the locations of the nodes are to be determined using public information sites, open-source crawlers and crawlers developed in-house. If no information is available on the geographic distribution of the nodes, reference networks are used which are comparable in terms of their incentivization structure and consensus mechanism. This geo-information is merged with public information from Our World in Data, see citation. The intensity is calculated as the marginal emission wrt. one more transaction.

Ember (2025); Energy Institute - Statistical Review of World Energy (2024) - with major processing by Our World in Data. "Carbon intensity of electricity generation - Ember and Energy Institute" [dataset]. Ember, "Yearly Electricity Data Europe"; Ember, "Yearly Electricity Data"; Energy Institute, "Statistical Review of World Energy" [original data]. Retrieved from <https://ourworldindata.org/grapher/carbon-intensity-electricity> Licenced under CC BY 4.0.



DOG•GO•TO•THE•MOON

DOG | /

Quantitative information

Quantitative sustainability indicators for DOG•GO•TO•THE•MOON

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	DOG•GO•TO•THE•MOON	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	96836731.10447	kWh/a
S.10 Renewable energy consumption	34.4781471084	%
S.11 Energy intensity	4.48089	kWh
S.12 Scope 1 DLT GHG emissions – Controlled	0.00000	tCO ₂ e
S.13 Scope 2 DLT GHG emissions – Purchased	39896.35181	tCO ₂ e
S.14 GHG intensity	1.84611	kgCO ₂ e

Qualitative information

S.4 Consensus Mechanism

The Bitcoin blockchain network uses a consensus mechanism called Proof of Work (PoW) to achieve distributed consensus among its nodes. Here's a detailed breakdown of how it works:

Core Concepts:

1. Nodes and Miners:

- Nodes: Nodes are computers running the Bitcoin software that participate in the network by validating transactions and blocks.
- Miners: Special nodes, called miners, perform the work of creating new blocks by solving complex cryptographic puzzles.

2. Blockchain: The blockchain is a public ledger that records all Bitcoin transactions in a series of blocks. Each block contains a list of transactions, a reference to the previous block (hash), a timestamp, and a nonce (a random number used once).
3. Hash Functions: Bitcoin uses the SHA-256 cryptographic hash function to secure the data in blocks. A hash function takes input data and produces a fixed-size string of characters, which appears random.

Consensus Process:

1. Transaction Validation: Transactions are broadcast to the network and collected by miners into a block. Each transaction must be validated by nodes to ensure it follows the network's rules, such as correct signatures and sufficient funds.
2. Mining and Block Creation:
 - Nonce and Hash Puzzle: Miners compete to find a nonce that, when combined with the block's data and passed through the SHA-256 hash function, produces a hash that is less than a target value. This target value is adjusted periodically to ensure that blocks are mined approximately every 10 minutes.
 - Proof of Work: The process of finding this nonce is computationally intensive and requires significant energy and resources. Once a miner finds a valid nonce, they broadcast the newly mined block to the network.
3. Block Validation and Addition: Other nodes in the network verify the new block to ensure the hash is correct and that all transactions within the block are valid. If the block is valid, nodes add it to their copy of the blockchain and the process starts again with the next block.
4. Chain Consensus: The longest chain (the chain with the most accumulated proof of work) is considered the valid chain by the network. Nodes always work to extend the longest valid chain. In the case of multiple valid chains (forks), the network will eventually resolve the fork by continuing to mine and extending one chain until it becomes longer.

For the calculation of the corresponding indicators, the additional energy consumption and the transactions of the Lightning Network have also been taken into account, as this reflects the categorization of the Digital Token Identifier Foundation for the respective functionally fungible group ("FFG") relevant for this reporting. If one would exclude these transactions, the respective estimations regarding the "per transaction" count would be substantially higher.

S.5 Incentive Mechanisms and Applicable Fees

The Bitcoin blockchain relies on a Proof-of-Work (PoW) consensus mechanism to ensure the security and integrity of transactions. This mechanism involves economic incentives for miners and a fee structure that supports network sustainability:

Incentive Mechanisms:

1. Block Rewards:
 - Newly Minted Bitcoins: Miners are incentivized by block rewards, which consist of newly created bitcoins awarded to the miner who successfully mines a new block. Initially, the block reward was 50 BTC, but it halves every 210,000 blocks (approx. every four years) in an event known as the "halving."
 - Halving and Scarcity: The halving mechanism ensures that the total supply of Bitcoin is capped at 21 million, creating scarcity and potentially increasing value over time.

2. Transaction Fees:

- User Fees: Each transaction includes a fee paid by the user to incentivize miners to include their transaction in a block. These fees are crucial, especially as the block reward diminishes over time due to halving.
- Fee Market: Transaction fees are determined by the market, where users compete to have their transactions processed quickly. Higher fees typically result in faster inclusion in a block, especially during periods of high network congestion.

For the calculation of the corresponding indicators, the additional energy consumption and the transactions of the Lightning Network have also been taken into account, as this reflects the categorization of the Digital Token Identifier Foundation for the respective functionally fungible group ("FFG") relevant for this reporting. If one would exclude these transactions, the respective estimations regarding the "per transaction" count would be substantially higher

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) bitcoin is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

S.15 Key energy sources and methodologies

To determine the proportion of renewable energy usage, the locations of the nodes are to be determined using public information sites, open-source crawlers and crawlers developed in-house. If no information is available on the geographic distribution of the nodes, reference networks are used which are comparable in terms of their incentivization structure and consensus mechanism. This geo-information is merged with public information from Our World in Data, see citation. The intensity is calculated as the marginal energy cost wrt. one more transaction.

Ember (2025); Energy Institute - Statistical Review of World Energy (2024) - with major processing by Our World in Data. "Share of electricity generated by renewables - Ember and Energy Institute" [dataset]. Ember, "Yearly Electricity Data Europe"; Ember, "Yearly Electricity Data"; Energy Institute, "Statistical Review of World Energy" [original data]. Retrieved from <https://ourworldindata.org/grapher/share-electricity-renewables>.

S.16 Key GHG sources and methodologies

To determine the GHG Emissions, the locations of the nodes are to be determined using public information sites, open-source crawlers and crawlers developed in-house. If no information is available on the geographic distribution of the nodes, reference networks are used which are comparable in terms of their incentivization structure and consensus mechanism. This geo-

information is merged with public information from Our World in Data, see citation. The intensity is calculated as the marginal emission wrt. one more transaction.

Ember (2025); Energy Institute - Statistical Review of World Energy (2024) - with major processing by Our World in Data. "Carbon intensity of electricity generation - Ember and Energy Institute" [dataset]. Ember, "Yearly Electricity Data Europe"; Ember, "Yearly Electricity Data"; Energy Institute, "Statistical Review of World Energy" [original data]. Retrieved from <https://ourworldindata.org/grapher/carbon-intensity-electricity> Licenced under CC BY 4.0.



Quantitative information

Quantitative sustainability indicators for Siacoin

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Siacoin	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	87614336.89081	kWh/a
S.10 Renewable energy consumption	34.4781471084	%
S.11 Energy intensity	1.58966	kWh
S.12 Scope 1 DLT GHG emissions – Controlled	0.00000	tCO ₂ e
S.13 Scope 2 DLT GHG emissions – Purchased	36096.76172	tCO ₂ e
S.14 GHG intensity	0.65494	kgCO ₂ e

Qualitative information

S.4 Consensus Mechanism

Siacoin employs a Proof of Work (PoW) consensus mechanism to secure its decentralized storage network.

Core Components:

- Proof of Work (PoW): Miners validate transactions and secure the blockchain by solving computational puzzles using the PoW model.
- Blake2b Hashing Algorithm: The network relies on the Blake2b hashing algorithm, optimized for efficient and secure mining operations.
- ASIC Mining: Mining on the Siacoin network is most efficient using Application-Specific Integrated Circuits (ASICs) tailored for the Blake2b algorithm, promoting network stability through specialized hardware.

S.5 Incentive Mechanisms and Applicable Fees

Siacoin incentivizes miners and storage hosts while ensuring low-cost, secure transactions and storage services.

Incentive Mechanisms:

- Block Rewards: Miners earn SC as rewards for validating transactions and successfully adding new blocks to the blockchain, encouraging continuous participation in network security.
- Transaction Fees: Users pay transaction fees in SC for sending payments and interacting with the network. These fees compensate miners for processing transactions and maintaining network integrity.
- Host Collateral: Storage hosts must lock up SC as collateral when entering storage contracts. This ensures reliability and motivates hosts to fulfill their storage commitments, enhancing trust within the network.

S.9 Energy consumption sources and methodologies

For the calculation of energy consumptions, the so called 'top-down' approach is being used, within which an economic calculation of the miners is assumed. Miners are persons or devices that actively participate in the proof-of-work consensus mechanism. The miners are considered to be the central factor for the energy consumption of the network. Hardware is pre-selected based on the consensus mechanism's hash algorithm: Blake. A current profitability threshold is determined on the basis of the revenue and cost structure for mining operations. Only Hardware above the profitability threshold is considered for the network. The energy consumption of the network can be determined by taking into account the distribution for the hardware, the efficiency levels for operating the hardware and on-chain information regarding the miners' revenue opportunities. If significant use of merge mining is known, this is taken into account. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

S.15 Key energy sources and methodologies

To determine the proportion of renewable energy usage, the locations of the nodes are to be determined using public information sites, open-source crawlers and crawlers developed in-house. If no information is available on the geographic distribution of the nodes, reference networks are used which are comparable in terms of their incentivization structure and consensus mechanism. This geo-information is merged with public information from Our World in Data, see citation. The intensity is calculated as the marginal energy cost wrt. one more transaction.

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S.16 Key GHG sources and methodologies

To determine the GHG Emissions, the locations of the nodes are to be determined using public information sites, open-source crawlers and crawlers developed in-house. If no information is available on the geographic distribution of the nodes, reference networks are used which are comparable in terms of their incentivization structure and consensus mechanism. This geo-information is merged with public information from Our World in Data, see citation. The intensity is calculated as the marginal emission wrt. one more transaction.

Ember (2025); Energy Institute - Statistical Review of World Energy (2024) - with major processing by Our World in Data. "Carbon intensity of electricity generation - Ember and Energy Institute" [dataset]. Ember, "Yearly Electricity Data Europe"; Ember, "Yearly Electricity Data"; Energy Institute, "Statistical Review of World Energy" [original data]. Retrieved from <https://ourworldindata.org/grapher/carbon-intensity-electricity> Licenced under CC BY 4.0.



Quantitative information

Quantitative sustainability indicators for Quai

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Quai	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	84796800.00000	kWh/a
S.10 Renewable energy consumption	34.4781471084	%
S.11 Energy intensity	0.01408	kWh
S.12 Scope 1 DLT GHG emissions – Controlled	0.00000	tCO ₂ e
S.13 Scope 2 DLT GHG emissions – Purchased	34935.94761	tCO ₂ e
S.14 GHG intensity	0.00580	kgCO ₂ e

Qualitative information

S.4 Consensus Mechanism

Quai employs a Proof of Entropy Minima (PoEM) consensus mechanism. This is a version of Proof of Work (PoW) with more efficient finality, i.e. conflict resolution in case multiple network nodes produce a new block almost at the same time. The PoW component uses an ASIC-resistant algorithm to promote decentralization and enable efficient mining.

Core Components:

- Proof of Work (PoW): Ensures network security and transaction validation by requiring miners to perform computational work.
- ProgPoW Algorithm: Utilizes an ASIC-resistant algorithm designed to allow mining with GPUs, encouraging broader participation and maintaining decentralization.

- Entropy Minima: Immediately resolves forks/achieves finality through an automated criterium that nodes can apply individually

S.5 Incentive Mechanisms and Applicable Fees

Quai incentivizes network security and transaction processing through block rewards and user fees/gas costs.

Incentive Mechanisms:

Block Rewards: Miners are rewarded with newly minted Quai tokens for successfully mining blocks and securing the blockchain.

Transaction Fees: Users pay fees/gas in Quai for transferring assets or executing operations, providing miners with additional compensation.

S.9 Energy consumption sources and methodologies

For the calculation of energy consumptions, the so called 'top-down' approach is being used, within which an economic calculation of the miners is assumed. Miners are persons or devices that actively participate in the proof-of-work consensus mechanism. The miners are considered to be the central factor for the energy consumption of the network. Hardware is pre-selected based on the consensus mechanism's hash algorithm: None. A current profitability threshold is determined on the basis of the revenue and cost structure for mining operations. Only Hardware above the profitability threshold is considered for the network. The energy consumption of the network can be determined by taking into account the distribution for the hardware, the efficiency levels for operating the hardware and on-chain information regarding the miners' revenue opportunities. If significant use of merge mining is known, this is taken into account. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

S.15 Key energy sources and methodologies

To determine the proportion of renewable energy usage, the locations of the nodes are to be determined using public information sites, open-source crawlers and crawlers developed in-house. If no information is available on the geographic distribution of the nodes, reference networks are used which are comparable in terms of their incentivization structure and consensus mechanism. This geo-information is merged with public information from Our World in Data, see citation. The intensity is calculated as the marginal energy cost wrt. one more transaction.

Ember (2025); Energy Institute - Statistical Review of World Energy (2024) - with major processing by Our World in Data. "Share of electricity generated by renewables - Ember and Energy Institute" [dataset]. Ember, "Yearly Electricity Data Europe"; Ember, "Yearly Electricity Data"; Energy Institute, "Statistical Review of World Energy" [original data]. Retrieved from <https://ourworldindata.org/grapher/share-electricity-renewables>.

S.16 Key GHG sources and methodologies

To determine the GHG Emissions, the locations of the nodes are to be determined using public information sites, open-source crawlers and crawlers developed in-house. If no information is available on the geographic distribution of the nodes, reference networks are used which are comparable in terms of their incentivization structure and consensus mechanism. This geo-information is merged with public information from Our World in Data, see citation. The intensity is calculated as the marginal emission wrt. one more transaction.

Ember (2025); Energy Institute - Statistical Review of World Energy (2024) - with major processing by Our World in Data. "Carbon intensity of electricity generation - Ember and Energy Institute" [dataset]. Ember, "Yearly Electricity Data Europe"; Ember, "Yearly Electricity Data"; Energy Institute, "Statistical Review of World Energy" [original data]. Retrieved from <https://ourworldindata.org/grapher/carbon-intensity-electricity> Licenced under CC BY 4.0.



Quantitative information

Quantitative sustainability indicators for Dash

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Dash	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	67500000.80459	kWh/a
S.10 Renewable energy consumption	34.4781470956	%
S.11 Energy intensity	0.24714	kWh
S.12 Scope 1 DLT GHG emissions – Controlled	0.00000	tCO ₂ e
S.13 Scope 2 DLT GHG emissions – Purchased	27809.73446	tCO ₂ e
S.14 GHG intensity	0.10182	kgCO ₂ e

Qualitative information

S.4 Consensus Mechanism

Dash is present on the following networks: Dash, Tron.

Dash combines Proof of Work (PoW) for block production with a masternode network, which adds enhanced services and governance. This hybrid approach enables Dash to offer both secure transaction validation and additional features like fast payments.

Core Components:

1. Proof of Work (PoW) with X11 Algorithm:

Block Production: Miners use the X11 algorithm to solve cryptographic puzzles, with the first to solve adding the next block and receiving a block reward.

2. Masternode Network – Proof of Service (PoSe):

- Collateral Requirement: Operating a masternode requires locking 1,000 DASH, which acts as collateral to secure services provided by the node.
- Network Services: Masternodes support features such as InstantSend for rapid payments, PrivateSend for enhanced privacy, and governance.

The Tron blockchain operates on a Delegated Proof of Stake (DPoS) consensus mechanism, designed to improve scalability, transaction speed, and energy efficiency.

Core Components:

1. Delegated Proof of Stake (DPoS): Tron uses DPoS, where token holders vote for a group of delegates known as Super Representatives (SRs) who are responsible for validating transactions and producing new blocks on the network. Token holders can vote for SRs based on their stake in the Tron network, and the top 27 SRs (or more, depending on the protocol version) are selected to participate in the block production process. SRs take turns producing blocks, which are added to the blockchain. This is done on a rotational basis to ensure decentralization and prevent control by a small group of validators.
2. Block Production: The Super Representatives generate new blocks and confirm transactions. The Tron blockchain achieves block finality quickly, with block production occurring every 3 seconds, making it highly efficient and capable of processing thousands of transactions per second.
3. Voting and Governance: Tron's DPoS system also allows token holders to vote on important network decisions, such as protocol upgrades and changes to the system's parameters. Voting power is proportional to the amount of TRX (Tron's native token) that a user holds and chooses to stake. This provides a governance system where the community can actively participate in decision-making.
4. Super Representatives: The Super Representatives play a crucial role in maintaining the security and stability of the Tron blockchain. They are responsible for validating transactions, proposing new blocks, and ensuring the overall functionality of the network. Super Representatives are incentivized with block rewards (newly minted TRX tokens) and transaction fees for their work.

S.5 Incentive Mechanisms and Applicable Fees

Dash is present on the following networks: Dash, Tron.

Dash rewards both miners and masternode operators to maintain network security and provide services, while also supporting community initiatives through a treasury fund.

Incentive Mechanisms:

1. Block Reward Distribution:
 - Miners: Receive 45% of each block reward for securing the network via PoW.
 - Masternodes: Earn 45% of each block reward, incentivizing them to operate and support network services.
 - Treasury Fund: 10% of each block reward is allocated to the Dash treasury, funding projects approved by the Dash DAO.
2. Masternode Staking and Rewards:

Passive Income for Operators: By locking 1,000 DASH, masternode operators earn rewards for providing network services and participating in governance.

Applicable Fees:

- Standard Transactions: Users pay a small fee in DASH, making it suitable for daily transactions due to its low-cost structure.
- InstantSend Transactions: Available for a slightly higher fee, these transactions are processed immediately by masternodes for added security.

The Tron blockchain uses a Delegated Proof of Stake (DPoS) consensus mechanism to secure its network and incentivize participation.

Incentive Mechanism:

1. Super Representatives (SRs) Rewards:

- Block Rewards: Super Representatives (SRs), who are elected by TRX holders, are rewarded for producing blocks. Each block they produce comes with a block reward in the form of TRX tokens.
- Transaction Fees: In addition to block rewards, SRs receive transaction fees for validating transactions and including them in blocks. This ensures they are incentivized to process transactions efficiently.

2. Voting and Delegation:

- TRX Staking: TRX holders can stake their tokens and vote for Super Representatives (SRs). When TRX holders vote, they delegate their voting power to SRs, which allows SRs to earn rewards in the form of newly minted TRX tokens.
- Delegator Rewards: Token holders who delegate their votes to an SR can also receive a share of the rewards. This means delegators share in the block rewards and transaction fees that the SR earns.
- Incentivizing Participation: The more tokens a user stakes, the more voting power they have, which encourages participation in governance and network security.

3. Incentive for SRs:

SRs are also incentivized to maintain the health and performance of the network. Their reputation and continued election depend on their ability to produce blocks consistently and efficiently process transactions.

Applicable Fees:

1. Transaction Fees:

- Fee Calculation: Users must pay transaction fees to have their transactions processed. The transaction fee varies based on the complexity of the transaction and the network's current demand. This is paid in TRX tokens. Transaction
- Fee Distribution: Transaction fees are distributed to Super Representatives (SRs), giving them an ongoing income to maintain and support the network.

2. Storage Fees:

Tron charges storage fees for data storage on the blockchain. This includes storing smart contracts, tokens, and other data on the network. Users are required to pay these fees in TRX tokens to store data.

3. Energy and Bandwidth:

Energy: Tron uses a resource model that allows users to access network resources like bandwidth and energy through staking. Users who stake their TRX tokens receive \energy

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

To determine the energy consumption of a token, the energy consumption of the network(s) tron is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

S.15 Key energy sources and methodologies

To determine the proportion of renewable energy usage, the locations of the nodes are to be determined using public information sites, open-source crawlers and crawlers developed in-house. If no information is available on the geographic distribution of the nodes, reference networks are used which are comparable in terms of their incentivization structure and consensus mechanism. This geo-information is merged with public information from Our World in Data, see citation. The intensity is calculated as the marginal energy cost wrt. one more transaction.

Ember (2025); Energy Institute - Statistical Review of World Energy (2024) - with major processing by Our World in Data. "Share of electricity generated by renewables - Ember and Energy Institute" [dataset]. Ember, "Yearly Electricity Data Europe"; Ember, "Yearly Electricity Data"; Energy Institute, "Statistical Review of World Energy" [original data]. Retrieved from <https://ourworldindata.org/grapher/share-electricity-renewables>.

S.16 Key GHG sources and methodologies

To determine the GHG Emissions, the locations of the nodes are to be determined using public information sites, open-source crawlers and crawlers developed in-house. If no information is available on the geographic distribution of the nodes, reference networks are used which are comparable in terms of their incentivization structure and consensus mechanism. This geo-information is merged with public information from Our World in Data, see citation. The intensity is calculated as the marginal emission wrt. one more transaction.

Ember (2025); Energy Institute - Statistical Review of World Energy (2024) - with major processing by Our World in Data. "Carbon intensity of electricity generation - Ember and Energy Institute" [dataset].

Ember, "Yearly Electricity Data Europe"; Ember, "Yearly Electricity Data"; Energy Institute, "Statistical Review of World Energy" [original data]. Retrieved from <https://ourworldindata.org/grapher/carbon-intensity-electricity> Licenced under CC BY 4.0.



MAGIC INTERNET MONEY

Bitcoin | RQPCRN3VN

Quantitative information

Quantitative sustainability indicators for MAGIC INTERNET MONEY

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	MAGIC INTERNET MONEY	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	30660708.38484	kWh/a
S.10 Renewable energy consumption	34.4781473717	%
S.11 Energy intensity	0.94287	kWh
S.12 Scope 1 DLT GHG emissions – Controlled	0.00000	tCO ₂ e
S.13 Scope 2 DLT GHG emissions – Purchased	12632.09095	tCO ₂ e
S.14 GHG intensity	0.38846	kgCO ₂ e

Qualitative information

S.4 Consensus Mechanism

MAGIC INTERNET MONEY is present on the following networks: Bitcoin, Solana.

The Bitcoin blockchain network uses a consensus mechanism called Proof of Work (PoW) to achieve distributed consensus among its nodes. Here's a detailed breakdown of how it works:

Core Concepts:

1. Nodes and Miners:

- Nodes: Nodes are computers running the Bitcoin software that participate in the network by validating transactions and blocks.
- Miners: Special nodes, called miners, perform the work of creating new blocks by solving complex cryptographic puzzles.

2. Blockchain: The blockchain is a public ledger that records all Bitcoin transactions in a series of blocks. Each block contains a list of transactions, a reference to the previous block (hash), a timestamp, and a nonce (a random number used once).
3. Hash Functions: Bitcoin uses the SHA-256 cryptographic hash function to secure the data in blocks. A hash function takes input data and produces a fixed-size string of characters, which appears random.

Consensus Process:

1. Transaction Validation: Transactions are broadcast to the network and collected by miners into a block. Each transaction must be validated by nodes to ensure it follows the network's rules, such as correct signatures and sufficient funds.
2. Mining and Block Creation:
 - Nonce and Hash Puzzle: Miners compete to find a nonce that, when combined with the block's data and passed through the SHA-256 hash function, produces a hash that is less than a target value. This target value is adjusted periodically to ensure that blocks are mined approximately every 10 minutes.
 - Proof of Work: The process of finding this nonce is computationally intensive and requires significant energy and resources. Once a miner finds a valid nonce, they broadcast the newly mined block to the network.
3. Block Validation and Addition: Other nodes in the network verify the new block to ensure the hash is correct and that all transactions within the block are valid. If the block is valid, nodes add it to their copy of the blockchain and the process starts again with the next block.
4. Chain Consensus: The longest chain (the chain with the most accumulated proof of work) is considered the valid chain by the network. Nodes always work to extend the longest valid chain. In the case of multiple valid chains (forks), the network will eventually resolve the fork by continuing to mine and extending one chain until it becomes longer.

For the calculation of the corresponding indicators, the additional energy consumption and the transactions of the Lightning Network have also been taken into account, as this reflects the categorization of the Digital Token Identifier Foundation for the respective functionally fungible group ("FFG") relevant for this reporting. If one would exclude these transactions, the respective estimations regarding the "per transaction" count would be substantially higher.

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):
 - Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
 - Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.
2. Proof of Stake (PoS):
 - Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
 - Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

MAGIC INTERNET MONEY is present on the following networks: Bitcoin, Solana.

The Bitcoin blockchain relies on a Proof-of-Work (PoW) consensus mechanism to ensure the security and integrity of transactions. This mechanism involves economic incentives for miners and a fee structure that supports network sustainability:

Incentive Mechanisms:

1. Block Rewards:

- Newly Minted Bitcoins: Miners are incentivized by block rewards, which consist of newly created bitcoins awarded to the miner who successfully mines a new block. Initially, the block reward was

50 BTC, but it halves every 210,000 blocks (approx. every four years) in an event known as the "halving."

- Halving and Scarcity: The halving mechanism ensures that the total supply of Bitcoin is capped at 21 million, creating scarcity and potentially increasing value over time.

2. Transaction Fees:

- User Fees: Each transaction includes a fee paid by the user to incentivize miners to include their transaction in a block. These fees are crucial, especially as the block reward diminishes over time due to halving.
- Fee Market: Transaction fees are determined by the market, where users compete to have their transactions processed quickly. Higher fees typically result in faster inclusion in a block, especially during periods of high network congestion.

For the calculation of the corresponding indicators, the additional energy consumption and the transactions of the Lightning Network have also been taken into account, as this reflects the categorization of the Digital Token Identifier Foundation for the respective functionally fungible group ("FFG") relevant for this reporting. If one would exclude these transactions, the respective estimations regarding the "per transaction" count would be substantially higher

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.
- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.

2. Delegators:

- Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.

3. Economic Security:

- Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
- Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.

2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.

3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.

4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) bitcoin, solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

S.15 Key energy sources and methodologies

To determine the proportion of renewable energy usage, the locations of the nodes are to be determined using public information sites, open-source crawlers and crawlers developed in-house. If no information is available on the geographic distribution of the nodes, reference networks are used which are comparable in terms of their incentivization structure and consensus mechanism. This geo-information is merged with public information from Our World in Data, see citation. The intensity is calculated as the marginal energy cost wrt. one more transaction.

Ember (2025); Energy Institute - Statistical Review of World Energy (2024) - with major processing by Our World in Data. "Share of electricity generated by renewables - Ember and Energy Institute" [dataset]. Ember, "Yearly Electricity Data Europe"; Ember, "Yearly Electricity Data"; Energy Institute, "Statistical Review of World Energy" [original data]. Retrieved from <https://ourworldindata.org/grapher/share-electricity-renewables>.

S.16 Key GHG sources and methodologies

To determine the GHG Emissions, the locations of the nodes are to be determined using public information sites, open-source crawlers and crawlers developed in-house. If no information is available on the geographic distribution of the nodes, reference networks are used which are comparable in terms of their incentivization structure and consensus mechanism. This geo-information is merged with public information from Our World in Data, see citation. The intensity is calculated as the marginal emission wrt. one more transaction.

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Review of World Energy" [original data]. Retrieved from <https://ourworldindata.org/grapher/carbon-intensity-electricity> Licenced under CC BY 4.0.



Lobo Dot The Dot Wolf Dot Pup

LOBO | /

Quantitative information

Quantitative sustainability indicators for Lobo Dot The Dot Wolf Dot Pup

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Lobo Dot The Dot Wolf Dot Pup	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	14308329.66187	kWh/a
S.10 Renewable energy consumption	34.4781471084	%
S.11 Energy intensity	4.48089	kWh
S.12 Scope 1 DLT GHG emissions – Controlled	0.00000	tCO2e
S.13 Scope 2 DLT GHG emissions – Purchased	5894.97546	tCO2e
S.14 GHG intensity	1.84611	kgCO2e

Qualitative information

S.4 Consensus Mechanism

The Bitcoin blockchain network uses a consensus mechanism called Proof of Work (PoW) to achieve distributed consensus among its nodes. Here's a detailed breakdown of how it works:

Core Concepts:

1. Nodes and Miners:

- Nodes: Nodes are computers running the Bitcoin software that participate in the network by validating transactions and blocks.
- Miners: Special nodes, called miners, perform the work of creating new blocks by solving complex cryptographic puzzles.

2. Blockchain: The blockchain is a public ledger that records all Bitcoin transactions in a series of blocks. Each block contains a list of transactions, a reference to the previous block (hash), a timestamp, and a nonce (a random number used once).
3. Hash Functions: Bitcoin uses the SHA-256 cryptographic hash function to secure the data in blocks. A hash function takes input data and produces a fixed-size string of characters, which appears random.

Consensus Process:

1. Transaction Validation: Transactions are broadcast to the network and collected by miners into a block. Each transaction must be validated by nodes to ensure it follows the network's rules, such as correct signatures and sufficient funds.
2. Mining and Block Creation:
 - Nonce and Hash Puzzle: Miners compete to find a nonce that, when combined with the block's data and passed through the SHA-256 hash function, produces a hash that is less than a target value. This target value is adjusted periodically to ensure that blocks are mined approximately every 10 minutes.
 - Proof of Work: The process of finding this nonce is computationally intensive and requires significant energy and resources. Once a miner finds a valid nonce, they broadcast the newly mined block to the network.
3. Block Validation and Addition: Other nodes in the network verify the new block to ensure the hash is correct and that all transactions within the block are valid. If the block is valid, nodes add it to their copy of the blockchain and the process starts again with the next block.
4. Chain Consensus: The longest chain (the chain with the most accumulated proof of work) is considered the valid chain by the network. Nodes always work to extend the longest valid chain. In the case of multiple valid chains (forks), the network will eventually resolve the fork by continuing to mine and extending one chain until it becomes longer.

For the calculation of the corresponding indicators, the additional energy consumption and the transactions of the Lightning Network have also been taken into account, as this reflects the categorization of the Digital Token Identifier Foundation for the respective functionally fungible group ("FFG") relevant for this reporting. If one would exclude these transactions, the respective estimations regarding the "per transaction" count would be substantially higher.

S.5 Incentive Mechanisms and Applicable Fees

The Bitcoin blockchain relies on a Proof-of-Work (PoW) consensus mechanism to ensure the security and integrity of transactions. This mechanism involves economic incentives for miners and a fee structure that supports network sustainability:

Incentive Mechanisms:

1. Block Rewards:
 - Newly Minted Bitcoins: Miners are incentivized by block rewards, which consist of newly created bitcoins awarded to the miner who successfully mines a new block. Initially, the block reward was 50 BTC, but it halves every 210,000 blocks (approx. every four years) in an event known as the "halving."
 - Halving and Scarcity: The halving mechanism ensures that the total supply of Bitcoin is capped at 21 million, creating scarcity and potentially increasing value over time.

2. Transaction Fees:

- User Fees: Each transaction includes a fee paid by the user to incentivize miners to include their transaction in a block. These fees are crucial, especially as the block reward diminishes over time due to halving.
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S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) bitcoin is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

S.15 Key energy sources and methodologies

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Ember (2025); Energy Institute - Statistical Review of World Energy (2024) - with major processing by Our World in Data. "Carbon intensity of electricity generation - Ember and Energy Institute" [dataset]. Ember, "Yearly Electricity Data Europe"; Ember, "Yearly Electricity Data"; Energy Institute, "Statistical Review of World Energy" [original data]. Retrieved from <https://ourworldindata.org/grapher/carbon-intensity-electricity> Licenced under CC BY 4.0.



Pups Dot World Dot Peace

PUPS | /

Quantitative information

Quantitative sustainability indicators for Pups Dot World Dot Peace

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Pups Dot World Dot Peace	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	11497767.99392	kWh/a
S.10 Renewable energy consumption	34.4781482106	%
S.11 Energy intensity	0.26819	kWh
S.12 Scope 1 DLT GHG emissions – Controlled	0.00000	tCO2e
S.13 Scope 2 DLT GHG emissions – Purchased	4737.03490	tCO2e
S.14 GHG intensity	0.11049	kgCO2e

Qualitative information

S.4 Consensus Mechanism

Pups Dot World Dot Peace is present on the following networks: Bitcoin, Solana.

The Bitcoin blockchain network uses a consensus mechanism called Proof of Work (PoW) to achieve distributed consensus among its nodes. Here's a detailed breakdown of how it works:

Core Concepts:

1. Nodes and Miners:

- Nodes: Nodes are computers running the Bitcoin software that participate in the network by validating transactions and blocks.
- Miners: Special nodes, called miners, perform the work of creating new blocks by solving complex cryptographic puzzles.

2. Blockchain: The blockchain is a public ledger that records all Bitcoin transactions in a series of blocks. Each block contains a list of transactions, a reference to the previous block (hash), a timestamp, and a nonce (a random number used once).
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Consensus Process:

1. Transaction Validation: Transactions are broadcast to the network and collected by miners into a block. Each transaction must be validated by nodes to ensure it follows the network's rules, such as correct signatures and sufficient funds.
2. Mining and Block Creation:
 - Nonce and Hash Puzzle: Miners compete to find a nonce that, when combined with the block's data and passed through the SHA-256 hash function, produces a hash that is less than a target value. This target value is adjusted periodically to ensure that blocks are mined approximately every 10 minutes.
 - Proof of Work: The process of finding this nonce is computationally intensive and requires significant energy and resources. Once a miner finds a valid nonce, they broadcast the newly mined block to the network.
3. Block Validation and Addition: Other nodes in the network verify the new block to ensure the hash is correct and that all transactions within the block are valid. If the block is valid, nodes add it to their copy of the blockchain and the process starts again with the next block.
4. Chain Consensus: The longest chain (the chain with the most accumulated proof of work) is considered the valid chain by the network. Nodes always work to extend the longest valid chain. In the case of multiple valid chains (forks), the network will eventually resolve the fork by continuing to mine and extending one chain until it becomes longer.

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2. Proof of Stake (PoS):
 - Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
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Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

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A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

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- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

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1. Block Rewards:

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- Halving and Scarcity: The halving mechanism ensures that the total supply of Bitcoin is capped at 21 million, creating scarcity and potentially increasing value over time.

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- User Fees: Each transaction includes a fee paid by the user to incentivize miners to include their transaction in a block. These fees are crucial, especially as the block reward diminishes over time due to halving.
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Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.
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3. Economic Security:

- Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
- Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.

2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.

3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.

4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) bitcoin, solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

S.15 Key energy sources and methodologies

To determine the proportion of renewable energy usage, the locations of the nodes are to be determined using public information sites, open-source crawlers and crawlers developed in-house. If no information is available on the geographic distribution of the nodes, reference networks are used which are comparable in terms of their incentivization structure and consensus mechanism. This geo-information is merged with public information from Our World in Data, see citation. The intensity is calculated as the marginal energy cost wrt. one more transaction.

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S.16 Key GHG sources and methodologies

To determine the GHG Emissions, the locations of the nodes are to be determined using public information sites, open-source crawlers and crawlers developed in-house. If no information is available on the geographic distribution of the nodes, reference networks are used which are comparable in terms of their incentivization structure and consensus mechanism. This geo-information is merged with public information from Our World in Data, see citation. The intensity is calculated as the marginal emission wrt. one more transaction.

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Review of World Energy” [original data]. Retrieved from <https://ourworldindata.org/grapher/carbon-intensity-electricity> Licenced under CC BY 4.0.



Billy (Bitcoin)

BILLY | /

Quantitative information

Quantitative sustainability indicators for Billy (Bitcoin)

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Billy (Bitcoin)	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	10220238.37390	kWh/a
S.10 Renewable energy consumption	34.4781482737	%
S.11 Energy intensity	0.25449	kWh
S.12 Scope 1 DLT GHG emissions – Controlled	0.00000	tCO2e
S.13 Scope 2 DLT GHG emissions – Purchased	4210.69774	tCO2e
S.14 GHG intensity	0.10485	kgCO2e

Qualitative information

S.4 Consensus Mechanism

Billy (Bitcoin) is present on the following networks: Bitcoin, Solana.

The Bitcoin blockchain network uses a consensus mechanism called Proof of Work (PoW) to achieve distributed consensus among its nodes. Here's a detailed breakdown of how it works:

Core Concepts:

1. Nodes and Miners:

- Nodes: Nodes are computers running the Bitcoin software that participate in the network by validating transactions and blocks.
- Miners: Special nodes, called miners, perform the work of creating new blocks by solving complex cryptographic puzzles.

2. Blockchain: The blockchain is a public ledger that records all Bitcoin transactions in a series of blocks. Each block contains a list of transactions, a reference to the previous block (hash), a timestamp, and a nonce (a random number used once).
3. Hash Functions: Bitcoin uses the SHA-256 cryptographic hash function to secure the data in blocks. A hash function takes input data and produces a fixed-size string of characters, which appears random.

Consensus Process:

1. Transaction Validation: Transactions are broadcast to the network and collected by miners into a block. Each transaction must be validated by nodes to ensure it follows the network's rules, such as correct signatures and sufficient funds.
2. Mining and Block Creation:
 - Nonce and Hash Puzzle: Miners compete to find a nonce that, when combined with the block's data and passed through the SHA-256 hash function, produces a hash that is less than a target value. This target value is adjusted periodically to ensure that blocks are mined approximately every 10 minutes.
 - Proof of Work: The process of finding this nonce is computationally intensive and requires significant energy and resources. Once a miner finds a valid nonce, they broadcast the newly mined block to the network.
3. Block Validation and Addition: Other nodes in the network verify the new block to ensure the hash is correct and that all transactions within the block are valid. If the block is valid, nodes add it to their copy of the blockchain and the process starts again with the next block.
4. Chain Consensus: The longest chain (the chain with the most accumulated proof of work) is considered the valid chain by the network. Nodes always work to extend the longest valid chain. In the case of multiple valid chains (forks), the network will eventually resolve the fork by continuing to mine and extending one chain until it becomes longer.

For the calculation of the corresponding indicators, the additional energy consumption and the transactions of the Lightning Network have also been taken into account, as this reflects the categorization of the Digital Token Identifier Foundation for the respective functionally fungible group ("FFG") relevant for this reporting. If one would exclude these transactions, the respective estimations regarding the "per transaction" count would be substantially higher.

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):
 - Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
 - Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.
2. Proof of Stake (PoS):
 - Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
 - Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Billy (Bitcoin) is present on the following networks: Bitcoin, Solana.

The Bitcoin blockchain relies on a Proof-of-Work (PoW) consensus mechanism to ensure the security and integrity of transactions. This mechanism involves economic incentives for miners and a fee structure that supports network sustainability:

Incentive Mechanisms:

1. Block Rewards:

- Newly Minted Bitcoins: Miners are incentivized by block rewards, which consist of newly created bitcoins awarded to the miner who successfully mines a new block. Initially, the block reward was

50 BTC, but it halves every 210,000 blocks (approx. every four years) in an event known as the "halving."

- Halving and Scarcity: The halving mechanism ensures that the total supply of Bitcoin is capped at 21 million, creating scarcity and potentially increasing value over time.

2. Transaction Fees:

- User Fees: Each transaction includes a fee paid by the user to incentivize miners to include their transaction in a block. These fees are crucial, especially as the block reward diminishes over time due to halving.
- Fee Market: Transaction fees are determined by the market, where users compete to have their transactions processed quickly. Higher fees typically result in faster inclusion in a block, especially during periods of high network congestion.

For the calculation of the corresponding indicators, the additional energy consumption and the transactions of the Lightning Network have also been taken into account, as this reflects the categorization of the Digital Token Identifier Foundation for the respective functionally fungible group ("FFG") relevant for this reporting. If one would exclude these transactions, the respective estimations regarding the "per transaction" count would be substantially higher

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.
- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.

2. Delegators:

- Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.

3. Economic Security:

- Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
- Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.

2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.

3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.

4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) bitcoin, solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

S.15 Key energy sources and methodologies

To determine the proportion of renewable energy usage, the locations of the nodes are to be determined using public information sites, open-source crawlers and crawlers developed in-house. If no information is available on the geographic distribution of the nodes, reference networks are used which are comparable in terms of their incentivization structure and consensus mechanism. This geo-information is merged with public information from Our World in Data, see citation. The intensity is calculated as the marginal energy cost wrt. one more transaction.

Ember (2025); Energy Institute - Statistical Review of World Energy (2024) - with major processing by Our World in Data. "Share of electricity generated by renewables - Ember and Energy Institute" [dataset]. Ember, "Yearly Electricity Data Europe"; Ember, "Yearly Electricity Data"; Energy Institute, "Statistical Review of World Energy" [original data]. Retrieved from <https://ourworldindata.org/grapher/share-electricity-renewables>.

S.16 Key GHG sources and methodologies

To determine the GHG Emissions, the locations of the nodes are to be determined using public information sites, open-source crawlers and crawlers developed in-house. If no information is available on the geographic distribution of the nodes, reference networks are used which are comparable in terms of their incentivization structure and consensus mechanism. This geo-information is merged with public information from Our World in Data, see citation. The intensity is calculated as the marginal emission wrt. one more transaction.

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Review of World Energy" [original data]. Retrieved from <https://ourworldindata.org/grapher/carbon-intensity-electricity> Licenced under CC BY 4.0.



Quantitative information

Quantitative sustainability indicators for Stacks

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Stacks	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	7055442.46639	kWh/a
S.10 Renewable energy consumption	34.4781471084	%
S.11 Energy intensity	0.01111	kWh
S.12 Scope 1 DLT GHG emissions – Controlled	0.00000	tCO ₂ e
S.13 Scope 2 DLT GHG emissions – Purchased	2906.81451	tCO ₂ e
S.14 GHG intensity	0.00458	kgCO ₂ e

Qualitative information

S.4 Consensus Mechanism

The Stacks blockchain, a Layer 2 solution on top of Bitcoin, uses a unique consensus mechanism called Proof of Transfer (PoX). PoX is inspired by Bitcoin's Proof of Work (PoW) and leverages Bitcoin's security by anchoring Stacks transactions on the Bitcoin blockchain.

Core Concepts of Proof of Transfer (PoX):

1. Recycling Bitcoin's Security:

- Stacks utilizes Bitcoin's hash power and PoW energy by requiring Stacks miners to transfer BTC in exchange for the native token STX, essentially "recycling" Bitcoin's energy without additional mining.
- Transactions on Stacks achieve Bitcoin finality—they are secured by Bitcoin's immutable blockchain.

2. Two-Layered Peg Mechanism:

Stacks introduces a decentralized, trust-minimized peg called sBTC, allowing assets to move between Bitcoin and Stacks. b. This peg enables Stacks smart contracts to interact with Bitcoin securely and in a decentralized way, enhancing utility and enabling DeFi on Bitcoin.

3. Smart Contracts with Clarity Language:

Stacks supports Clarity, a smart contract language designed for predictability and safety. Clarity contracts allow developers to know exactly what a contract will do before execution, ensuring security.

4. Miners and Stakers:

Miners transfer BTC to earn newly minted STX, securing the network. b. STX Holders (stakers) are incentivized to lock up STX tokens, earning BTC rewards in return.

S.5 Incentive Mechanisms and Applicable Fees

The Stacks network incentivizes secure transactions and network participation through its unique Proof of Transfer (PoX) consensus model, which integrates incentives for both miners and STX holders.

Incentive Mechanisms to Secure Transactions:

1. Miners' Incentives:

- BTC Transfers for Block Rewards: Stacks miners secure the network by transferring Bitcoin (BTC) to compete for the opportunity to mine a new block and earn STX rewards. This transfer of BTC ensures miners are vested in the network's security without directly consuming additional computational power.
- Newly Minted STX Rewards: Miners who successfully mine a block are rewarded with newly minted STX tokens. This reward incentivizes miners to continue participating in securing the Stacks network.
- Bitcoin Finality: Since Stacks blocks are anchored to Bitcoin, the network leverages Bitcoin's security to ensure finality, meaning that once transactions are confirmed on Bitcoin, they are considered immutable and secure.

2. Incentives for STX Holders (Stacking Rewards):

- Stacking BTC Rewards: STX holders can participate in the consensus process through a mechanism called Stacking. By locking up (temporarily holding) their STX tokens, these participants contribute to network stability and security. In return, they receive BTC rewards paid by the miners.
- Decentralization and Security Contribution: The Stacking process promotes decentralization by encouraging broad participation from STX holders, who help maintain network stability and security. This model reduces reliance on a few large players and provides economic rewards for active participation.

3. Two-Layered Peg and Decentralized Utility:

By utilizing a two-way peg mechanism, the Stacks network allows BTC to be moved between Bitcoin and Stacks, enabling secure, decentralized transactions. This enhances the overall utility of the network, encouraging more users and developers to participate in the ecosystem.

S.9 Energy consumption sources and methodologies

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the

hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

S.15 Key energy sources and methodologies

To determine the proportion of renewable energy usage, the locations of the nodes are to be determined using public information sites, open-source crawlers and crawlers developed in-house. If no information is available on the geographic distribution of the nodes, reference networks are used which are comparable in terms of their incentivization structure and consensus mechanism. This geo-information is merged with public information from Our World in Data, see citation. The intensity is calculated as the marginal energy cost wrt. one more transaction.

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To determine the GHG Emissions, the locations of the nodes are to be determined using public information sites, open-source crawlers and crawlers developed in-house. If no information is available on the geographic distribution of the nodes, reference networks are used which are comparable in terms of their incentivization structure and consensus mechanism. This geo-information is merged with public information from Our World in Data, see citation. The intensity is calculated as the marginal emission wrt. one more transaction.

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Quantitative information

Quantitative sustainability indicators for Solana SOL

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Solana SOL	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	6843750.00000	kWh/a
S.10 Renewable energy consumption	38.5831139958	%
S.11 Energy intensity	0.00000	kWh
S.12 Scope 1 DLT GHG emissions – Controlled	0.00000	tCO ₂ e
S.13 Scope 2 DLT GHG emissions – Purchased	2319.13534	tCO ₂ e
S.14 GHG intensity	0.00000	kgCO ₂ e

Qualitative information

S.4 Consensus Mechanism

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.
- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.

2. Delegators:

- Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.

3. Economic Security:

- Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
- Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Fees Applicable on the Solana Blockchain

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.

2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.

3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.

4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The

information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

S.15 Key energy sources and methodologies

To determine the proportion of renewable energy usage, the locations of the nodes are to be determined using public information sites, open-source crawlers and crawlers developed in-house. If no information is available on the geographic distribution of the nodes, reference networks are used which are comparable in terms of their incentivization structure and consensus mechanism. This geo-information is merged with public information from Our World in Data, see citation. The intensity is calculated as the marginal energy cost wrt. one more transaction.

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S.16 Key GHG sources and methodologies

To determine the GHG Emissions, the locations of the nodes are to be determined using public information sites, open-source crawlers and crawlers developed in-house. If no information is available on the geographic distribution of the nodes, reference networks are used which are comparable in terms of their incentivization structure and consensus mechanism. This geo-information is merged with public information from Our World in Data, see citation. The intensity is calculated as the marginal emission wrt. one more transaction.

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Internet Computer Token

ICP | 4DHTM5D7P

Quantitative information

Quantitative sustainability indicators for Internet Computer Token

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Internet Computer Token	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	5834160.00000	kWh/a
S.10 Renewable energy consumption	35.90000000000	%
S.11 Energy intensity	0.00720	kWh
S.12 Scope 1 DLT GHG emissions – Controlled	0.00000	tCO ₂ e
S.13 Scope 2 DLT GHG emissions – Purchased	2047.79016	tCO ₂ e
S.14 GHG intensity	0.00253	kgCO ₂ e

Qualitative information

S.4 Consensus Mechanism

The Internet Computer Protocol (ICP) uses a unique consensus mechanism called Threshold Relay combined with Chain Key Technology to ensure decentralized, scalable, and secure operations for its network.

Core Components of ICP's Consensus Mechanism:

1. Threshold Relay:

Threshold Relay is a consensus protocol that enables the network to achieve finality without a traditional Proof-of-Work or Proof-of-Stake mechanism. It leverages a group of nodes called "the committee" to generate a random beacon that is used for the selection of the next block producer. The protocol is designed to provide scalability and speed while maintaining decentralization by allowing any node to join the consensus process. The key feature of

Threshold Relay is that it utilizes a threshold signature scheme, where a group of nodes must collaborate to create a valid signature, ensuring that consensus is achieved even in the presence of faulty or malicious nodes.

2. Chain Key Technology:

Chain Key Technology is used to manage the state of the Internet Computer, allowing it to scale effectively across a vast number of nodes while still providing fast and secure transaction finality. This technology enables the creation and management of many independent blockchains (also known as subnet blockchains), each with its own set of validators. Chain Key Technology allows the Internet Computer to support billions of smart contracts without compromising speed, as it facilitates quick communication between the subnets and enables cross-chain interoperability.

3. Canister Smart Contracts:

- The Internet Computer utilizes a decentralized model where the computation of canister smart contracts (which hold the application logic) occurs across different nodes in the network. These canisters can run autonomously and scale with the network's growth.
- Finality and Security: The consensus mechanism ensures finality once a transaction is validated, meaning that once a block is added, it cannot be reverted, providing the security required for high-stakes applications. The use of Threshold Relay provides robust Byzantine Fault Tolerance (BFT), enabling the network to tolerate faulty or malicious behavior without compromising network integrity.

S.5 Incentive Mechanisms and Applicable Fees

The Internet Computer Protocol (ICP) incentivizes network participants (validators, node operators, and canister developers) through various reward mechanisms and transaction fees. Here's a breakdown of the incentive mechanisms and applicable fees related to ICP:

Incentive Mechanism:

1. Network Participation and Rewards:

- Validators: Validators are crucial for maintaining the integrity and security of the network. They stake ICP tokens to participate in consensus and are rewarded for validating blocks, maintaining the integrity of the decentralized network, and ensuring its performance. Rewards for validators are based on their participation in the consensus mechanism and their stake in the network.
- Node Operators: Node operators who maintain the physical infrastructure of the network (such as hardware and server resources) are also rewarded. These operators run the nodes that participate in the Threshold Relay and provide computational power to the network.

2. Canister Developers and Network Participants:

- Canister Smart Contracts: Developers of canisters (smart contracts) on the Internet Computer are incentivized through the creation of decentralized applications (dApps). Developers may also benefit from transaction fees generated by the usage of their dApps and the deployment of smart contracts on the network.
- Usage Fees: Users of decentralized applications (dApps) or canisters are incentivized to pay for their usage through fees. These fees are often paid in ICP tokens, and developers can receive a share of these fees based on the usage of their deployed applications.

3. Governance:

The ICP Token is used for governance via the Network Nervous System (NNS), where holders of ICP tokens participate in decisions regarding the protocol, such as network upgrades, incentive adjustments, and the allocation of funds. Token holders are rewarded with the ability to influence the future of the network.

4. Staking Rewards:

Staking: ICP token holders can participate in staking their tokens in the NNS, which influences network consensus and governance. By participating in staking, they help secure the network

and are rewarded with staking rewards (a form of passive income). The staking rewards are given to token holders who participate in securing the network via the NNS.

Applicable Fees:

1. Transaction Fees:

- Canister Calls: Every interaction with a canister (smart contract) on the Internet Computer incurs a transaction fee. These fees are typically paid in ICP tokens and are used to cover the computational resources required to process requests, store data, and manage execution.
- Fee Structure: Transaction fees depend on the complexity and resources consumed by the canister call or network operation. For example, operations that require more computational power or data storage may incur higher fees.

2. Storage Fees:

Canister Data Storage: Developers and users who deploy applications on the Internet Computer are required to pay fees for storing data. These fees ensure that network resources are used efficiently and that canisters do not waste storage space. The cost of storage is typically paid in ICP tokens.

3. Governance Participation Fees:

Voting and Proposal Fees: Participation in the governance process via the NNS (Network Nervous System) may require a small fee, depending on the type of governance action (such as submitting a proposal or voting). These fees ensure that governance is distributed and prevent spam attacks on the governance system.

4. Node and Validator Fees:

Fees for Node Operations: Node operators who provide computational power to the network may incur costs related to maintaining hardware and operating nodes. These fees are partially offset by rewards for providing network resources.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

To determine the energy consumption of a token, the energy consumption of the network(s) `internet_computer` is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of

participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

S.15 Key energy sources and methodologies

To determine the proportion of renewable energy usage, the locations of the nodes are to be determined using public information sites, open-source crawlers and crawlers developed in-house. If no information is available on the geographic distribution of the nodes, reference networks are used which are comparable in terms of their incentivization structure and consensus mechanism. This geo-information is merged with public information from Our World in Data, see citation. The intensity is calculated as the marginal energy cost wrt. one more transaction.

Ember (2025); Energy Institute - Statistical Review of World Energy (2024) - with major processing by Our World in Data. "Share of electricity generated by renewables - Ember and Energy Institute" [dataset]. Ember, "Yearly Electricity Data Europe"; Ember, "Yearly Electricity Data"; Energy Institute, "Statistical Review of World Energy" [original data]. Retrieved from <https://ourworldindata.org/grapher/share-electricity-renewables>.

S.16 Key GHG sources and methodologies

To determine the GHG Emissions, the locations of the nodes are to be determined using public information sites, open-source crawlers and crawlers developed in-house. If no information is available on the geographic distribution of the nodes, reference networks are used which are comparable in terms of their incentivization structure and consensus mechanism. This geo-information is merged with public information from Our World in Data, see citation. The intensity is calculated as the marginal emission wrt. one more transaction.

Ember (2025); Energy Institute - Statistical Review of World Energy (2024) - with major processing by Our World in Data. "Carbon intensity of electricity generation - Ember and Energy Institute" [dataset]. Ember, "Yearly Electricity Data Europe"; Ember, "Yearly Electricity Data"; Energy Institute, "Statistical Review of World Energy" [original data]. Retrieved from <https://ourworldindata.org/grapher/carbon-intensity-electricity> Licenced under CC BY 4.0.



EthereumPOW

WETHW | N1NLFX5KR

Quantitative information

Quantitative sustainability indicators for EthereumPOW

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	EthereumPOW	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	5526262.30586	kWh/a
S.10 Renewable energy consumption	34.4781471084	%
S.11 Energy intensity	0.00733	kWh
S.12 Scope 1 DLT GHG emissions – Controlled	0.00000	tCO ₂ e
S.13 Scope 2 DLT GHG emissions – Purchased	2276.79830	tCO ₂ e
S.14 GHG intensity	0.00302	kgCO ₂ e

Qualitative information

S.4 Consensus Mechanism

Ethereum PoW employs the traditional Proof of Work (PoW) consensus mechanism, maintaining the original Ethereum blockchain's mining-based validation process after the transition to Proof of Stake (PoS) by the Ethereum mainnet.

Core Components:

- Proof of Work (PoW): Ethereum PoW secures its network through miners competing to solve cryptographic puzzles to validate transactions and produce new blocks. The mining process is computationally intensive, requiring significant energy consumption and specialized hardware (e.g., GPUs and ASICs).

- Ethash Algorithm: The blockchain uses the Ethash algorithm, designed to be memory-intensive and resistant to ASIC dominance, ensuring broader participation in mining by allowing GPUs to compete effectively.
- Block Production and Finality: New blocks are added to the blockchain by miners who successfully solve the cryptographic puzzle, with block rewards and transaction fees acting as incentives. Ethereum PoW achieves probabilistic finality, meaning transactions become increasingly irreversible as additional blocks are added to the chain.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum PoW maintains the traditional incentive structure of Proof of Work, rewarding miners for securing the network and processing transactions, while users pay transaction fees for network operations.

Incentive Mechanism:

- Block Rewards: Miners earn block rewards in ETHW (Ethereum PoW tokens) for successfully mining new blocks and adding them to the blockchain. These rewards incentivize miners to dedicate computational power to secure the network.
- Transaction Fees: In addition to block rewards, miners receive transaction fees paid by users for executing transactions or interacting with smart contracts on the network. These fees are included in the blocks miners validate, providing an additional revenue stream.
- Deflationary Model: A portion of transaction fees (base fee) may be burned under the EIP-1559 model implemented in the original Ethereum chain, reducing the overall token supply over time and potentially increasing the value of ETHW.

Applicable Fees:

- Gas Fees: Users pay gas fees in ETHW for network transactions, which vary based on the complexity of the transaction and network demand. Gas fees include a base fee (burned) and a priority fee (paid to miners).
- Smart Contract Fees: Smart contract interactions incur additional gas costs, reflecting the computational resources required to execute the operations.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

For the calculation of energy consumptions, the so called 'top-down' approach is being used, within which an economic calculation of the miners is assumed. Miners are persons or devices that actively participate in the proof-of-work consensus mechanism. The miners are considered to be the central factor for the energy consumption of the network. Hardware is pre-selected based on the consensus mechanism's hash algorithm: Etchash. A current profitability threshold is determined on the basis of the revenue and cost structure for mining operations. Only Hardware above the profitability threshold is considered for the network. The energy consumption of the network can be determined by taking into account the distribution for the hardware, the efficiency levels for operating the hardware and on-chain information regarding the miners' revenue opportunities. If significant use of merge mining is known, this is taken into account. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort

using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

To determine the energy consumption of a token, the energy consumption of the network(s) ethereumpow is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

S.15 Key energy sources and methodologies

To determine the proportion of renewable energy usage, the locations of the nodes are to be determined using public information sites, open-source crawlers and crawlers developed in-house. If no information is available on the geographic distribution of the nodes, reference networks are used which are comparable in terms of their incentivization structure and consensus mechanism. This geo-information is merged with public information from Our World in Data, see citation. The intensity is calculated as the marginal energy cost wrt. one more transaction.

Ember (2025); Energy Institute - Statistical Review of World Energy (2024) - with major processing by Our World in Data. "Share of electricity generated by renewables - Ember and Energy Institute" [dataset]. Ember, "Yearly Electricity Data Europe"; Ember, "Yearly Electricity Data"; Energy Institute, "Statistical Review of World Energy" [original data]. Retrieved from <https://ourworldindata.org/grapher/share-electricity-renewables>.

S.16 Key GHG sources and methodologies

To determine the GHG Emissions, the locations of the nodes are to be determined using public information sites, open-source crawlers and crawlers developed in-house. If no information is available on the geographic distribution of the nodes, reference networks are used which are comparable in terms of their incentivization structure and consensus mechanism. This geo-information is merged with public information from Our World in Data, see citation. The intensity is calculated as the marginal emission wrt. one more transaction.

Ember (2025); Energy Institute - Statistical Review of World Energy (2024) - with major processing by Our World in Data. "Carbon intensity of electricity generation - Ember and Energy Institute" [dataset]. Ember, "Yearly Electricity Data Europe"; Ember, "Yearly Electricity Data"; Energy Institute, "Statistical Review of World Energy" [original data]. Retrieved from <https://ourworldindata.org/grapher/carbon-intensity-electricity> Licenced under CC BY 4.0.



Quantitative information

Quantitative sustainability indicators for TRON TRX

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	TRON TRX	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	4026098.81849	kWh/a
S.10 Renewable energy consumption	33.4000000241	%
S.11 Energy intensity	0.00002	kWh
S.12 Scope 1 DLT GHG emissions – Controlled	0.00000	tCO ₂ e
S.13 Scope 2 DLT GHG emissions – Purchased	1582.25683	tCO ₂ e
S.14 GHG intensity	0.00001	kgCO ₂ e

Qualitative information

S.4 Consensus Mechanism

TRON TRX is present on the following networks: Base, Tron.

Base does not operate its own consensus mechanism or decentralised validator set comparable to a Layer-1 blockchain. As an optimistic rollup Layer-2 network, Base relies on Ethereum's Proof-of-Stake consensus for the finality and settlement of data and state commitments posted to Ethereum Layer 1. Transaction ordering on Base is performed by a sequencer, currently operated by Coinbase. This sequencing function provides transaction ordering and execution on the Layer-2 network but does not constitute a decentralised consensus mechanism. The validity of Layer-2 state transitions is supported by an optimistic fault-proof mechanism, under which incorrect state commitments may be challenged during the applicable dispute period. Accordingly, Base's security model depends on Ethereum Layer 1 for settlement and finality, while Layer-2 transaction ordering remains dependent on the sequencer.

The Tron blockchain operates on a Delegated Proof of Stake (DPoS) consensus mechanism, designed to improve scalability, transaction speed, and energy efficiency.

Core Components:

1. **Delegated Proof of Stake (DPoS):** Tron uses DPoS, where token holders vote for a group of delegates known as Super Representatives (SRs) who are responsible for validating transactions and producing new blocks on the network. Token holders can vote for SRs based on their stake in the Tron network, and the top 27 SRs (or more, depending on the protocol version) are selected to participate in the block production process. SRs take turns producing blocks, which are added to the blockchain. This is done on a rotational basis to ensure decentralization and prevent control by a small group of validators.
2. **Block Production:** The Super Representatives generate new blocks and confirm transactions. The Tron blockchain achieves block finality quickly, with block production occurring every 3 seconds, making it highly efficient and capable of processing thousands of transactions per second.
3. **Voting and Governance:** Tron's DPoS system also allows token holders to vote on important network decisions, such as protocol upgrades and changes to the system's parameters. Voting power is proportional to the amount of TRX (Tron's native token) that a user holds and chooses to stake. This provides a governance system where the community can actively participate in decision-making.
4. **Super Representatives:** The Super Representatives play a crucial role in maintaining the security and stability of the Tron blockchain. They are responsible for validating transactions, proposing new blocks, and ensuring the overall functionality of the network. Super Representatives are incentivized with block rewards (newly minted TRX tokens) and transaction fees for their work.

S.5 Incentive Mechanisms and Applicable Fees

TRON TRX is present on the following networks: Base, Tron.

Base does not have a native protocol token and does not operate a staking, validator reward or token issuance mechanism. Transaction fees on Base are paid in ETH. The economic incentives within the network are primarily related to transaction processing and network security. Transactions are executed on Base and periodically submitted to Ethereum Layer 1 in batches. As the cost of a Layer-1 submission is shared among multiple Layer-2 transactions, the average transaction cost per transaction may be lower than executing the same transactions directly on Ethereum Layer 1. The integrity of withdrawals from Base is supported by a fault-proof mechanism. Withdrawals are subject to a dispute period during which participants may challenge incorrect state commitments. The dispute process incorporates economic incentives intended to encourage honest behaviour and discourage invalid claims.

The Tron blockchain uses a Delegated Proof of Stake (DPoS) consensus mechanism to secure its network and incentivize participation.

Incentive Mechanism:

1. **Super Representatives (SRs) Rewards:**
 - **Block Rewards:** Super Representatives (SRs), who are elected by TRX holders, are rewarded for producing blocks. Each block they produce comes with a block reward in the form of TRX tokens.
 - **Transaction Fees:** In addition to block rewards, SRs receive transaction fees for validating transactions and including them in blocks. This ensures they are incentivized to process transactions efficiently.

2. Voting and Delegation:

- TRX Staking: TRX holders can stake their tokens and vote for Super Representatives (SRs). When TRX holders vote, they delegate their voting power to SRs, which allows SRs to earn rewards in the form of newly minted TRX tokens.
- Delegator Rewards: Token holders who delegate their votes to an SR can also receive a share of the rewards. This means delegators share in the block rewards and transaction fees that the SR earns.
- Incentivizing Participation: The more tokens a user stakes, the more voting power they have, which encourages participation in governance and network security.

3. Incentive for SRs:

SRs are also incentivized to maintain the health and performance of the network. Their reputation and continued election depend on their ability to produce blocks consistently and efficiently process transactions.

Applicable Fees:

1. Transaction Fees:

- Fee Calculation: Users must pay transaction fees to have their transactions processed. The transaction fee varies based on the complexity of the transaction and the network's current demand. This is paid in TRX tokens. Transaction
- Fee Distribution: Transaction fees are distributed to Super Representatives (SRs), giving them an ongoing income to maintain and support the network.

2. Storage Fees:

Tron charges storage fees for data storage on the blockchain. This includes storing smart contracts, tokens, and other data on the network. Users are required to pay these fees in TRX tokens to store data.

3. Energy and Bandwidth:

Energy: Tron uses a resource model that allows users to access network resources like bandwidth and energy through staking. Users who stake their TRX tokens receive \energy

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

To determine the energy consumption of a token, the energy consumption of the network(s) base, tron is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally

Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

S.15 Key energy sources and methodologies

To determine the proportion of renewable energy usage, the locations of the nodes are to be determined using public information sites, open-source crawlers and crawlers developed in-house. If no information is available on the geographic distribution of the nodes, reference networks are used which are comparable in terms of their incentivization structure and consensus mechanism. This geo-information is merged with public information from Our World in Data, see citation. The intensity is calculated as the marginal energy cost wrt. one more transaction.

Ember (2025); Energy Institute - Statistical Review of World Energy (2024) - with major processing by Our World in Data. "Share of electricity generated by renewables - Ember and Energy Institute" [dataset]. Ember, "Yearly Electricity Data Europe"; Ember, "Yearly Electricity Data"; Energy Institute, "Statistical Review of World Energy" [original data]. Retrieved from <https://ourworldindata.org/grapher/share-electricity-renewables>.

S.16 Key GHG sources and methodologies

To determine the GHG Emissions, the locations of the nodes are to be determined using public information sites, open-source crawlers and crawlers developed in-house. If no information is available on the geographic distribution of the nodes, reference networks are used which are comparable in terms of their incentivization structure and consensus mechanism. This geo-information is merged with public information from Our World in Data, see citation. The intensity is calculated as the marginal emission wrt. one more transaction.

Ember (2025); Energy Institute - Statistical Review of World Energy (2024) - with major processing by Our World in Data. "Carbon intensity of electricity generation - Ember and Energy Institute" [dataset]. Ember, "Yearly Electricity Data Europe"; Ember, "Yearly Electricity Data"; Energy Institute, "Statistical Review of World Energy" [original data]. Retrieved from <https://ourworldindata.org/grapher/carbon-intensity-electricity> Licenced under CC BY 4.0.



Quantitative information

Quantitative sustainability indicators for Filecoin

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Filecoin	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	2409020.30620	kWh/a
S.10 Renewable energy consumption	37.9124133539	%
S.11 Energy intensity	0.00178	kWh
S.12 Scope 1 DLT GHG emissions – Controlled	0.00000	tCO ₂ e
S.13 Scope 2 DLT GHG emissions – Purchased	801.75389	tCO ₂ e
S.14 GHG intensity	0.00059	kgCO ₂ e

Qualitative information

S.4 Consensus Mechanism

Filecoin is present on the following networks: Binance Smart Chain, Filecoin, Huobi.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be

selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Filecoin's consensus mechanism, Expected Consensus (EC), is designed to reward data storage providers based on the amount of storage they contribute.

Core Components of Expected Consensus (EC):

1. Storage Power-Based Block Production:

Probabilistic Block Selection: Block producers (miners) are chosen probabilistically based on their storage power, meaning providers with more storage capacity have higher chances of being selected to produce new blocks.

2. Proof of Replication (PoRep):

Initial Data Verification: Miners provide cryptographic Proof of Replication to verify they are uniquely storing clients' data at the start of each storage contract.

3. Proof of Spacetime (PoSt):

Ongoing Verification: Miners periodically submit Proof of Spacetime to confirm they continue to store data over the contract's duration, maintaining data availability and integrity.

4. Chain Quality and Fork Choice:

Chain Quality Rule: In cases of chain splits, the network follows the chain with the highest cumulative storage power, ensuring security by selecting the most robust chain.

The Huobi Eco Chain (HECO) blockchain employs a Hybrid-Proof-of-Stake (HPoS) consensus mechanism, combining elements of Proof-of-Stake (PoS) to enhance transaction efficiency and scalability.

Key Features of HECO's Consensus Mechanism:

1. Validator Selection: HECO supports up to 21 validators, selected based on their stake in the network.

2. Transaction Processing: Validators are responsible for processing transactions and adding blocks to the blockchain.

3. Transaction Finality: The consensus mechanism ensures quick finality, allowing for rapid confirmation of transactions.

4. Energy Efficiency: By utilizing PoS elements, HECO reduces energy consumption compared to traditional Proof-of-Work systems.

S.5 Incentive Mechanisms and Applicable Fees

Filecoin is present on the following networks: Binance Smart Chain, Filecoin, Huobi.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from

22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Filecoin incentivizes storage providers (miners) to maintain data integrity and make decentralized storage available through block rewards and storage fees.

Incentive Mechanisms:

1. Block Rewards:

- Storage-Based Block Rewards: Block rewards in FIL (Filecoin's native token) are given to storage providers selected to add new blocks, proportional to their storage power. These rewards incentivize providers to contribute more storage to the network, enhancing security and decentralized data availability.
- Reward Distribution: Providers with higher storage capacity receive rewards more frequently, creating a direct economic incentive to offer larger storage volumes.

2. Storage Fees:

- Client Payments: Clients pay storage providers (miners) in FIL tokens to store data, incentivizing providers to offer reliable storage.
- Market Pricing: Storage costs are determined by supply and demand, allowing competitive, flexible pricing based on network conditions.

3. Data Retrieval Payments:

In addition to storage fees, miners can earn retrieval fees for providing data access to clients. These fees incentivize storage providers to make stored data readily accessible, enabling Filecoin to support efficient, decentralized data retrieval services.

4. Slashing and Penalties:

- If a miner fails to provide Proof of Spacetime, they may face slashing penalties, losing a portion of their FIL collateral. This mechanism disincentivizes data tampering or deletion by holding providers accountable to their storage commitments.
- Client Refunds: In cases of missed proofs, clients may receive refunds or compensations, ensuring that the network maintains a high standard of data reliability and provider accountability.

Applicable Fees:

1. Transaction Fees:

Filecoin charges transaction fees for standard network operations, paid in FIL. These fees help maintain network functionality and discourage spam by aligning costs with network resource usage.

2. Gas Fees:

Miners pay gas fees based on the computational resources required to submit PoRep and PoSt proofs. These fees are integral to the network's operation, ensuring that participants contribute fairly to Filecoin's resource demands.

3. Storage and Retrieval Fees:

Clients pay miners for data storage on a contract basis, and retrieval fees are paid when miners deliver data on request. These fees are tailored to the type and duration of storage services, providing flexibility in data pricing and availability.

The Huobi Eco Chain (HECO) blockchain employs a Hybrid-Proof-of-Stake (HPoS) consensus mechanism, combining elements of Proof-of-Stake (PoS) to enhance transaction efficiency and scalability.

Incentive Mechanism:

1. Validator Rewards:

Validators are selected based on their stake in the network. They process transactions and add blocks to the blockchain. Validators receive rewards in the form of transaction fees for their role in maintaining the blockchain's integrity.

2. Staking Participation:

Users can stake Huobi Token (HT) to become validators or delegate their tokens to existing validators. Staking helps secure the network and, in return, participants receive a portion of the transaction fees as rewards.

Applicable Fees:

1. Transaction Fees (Gas Fees):

Users pay gas fees in HT tokens to execute transactions and interact with smart contracts on the HECO network. These fees compensate validators for processing and validating transactions.

2. Smart Contract Execution Fees:

Deploying and interacting with smart contracts incur additional fees, which are also paid in HT tokens. These fees cover the computational resources required to execute contract code.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on

assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

To determine the energy consumption of a token, the energy consumption of the network(s) binance_smart_chain, huobi is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

S.15 Key energy sources and methodologies

To determine the proportion of renewable energy usage, the locations of the nodes are to be determined using public information sites, open-source crawlers and crawlers developed in-house. If no information is available on the geographic distribution of the nodes, reference networks are used which are comparable in terms of their incentivization structure and consensus mechanism. This geo-information is merged with public information from Our World in Data, see citation. The intensity is calculated as the marginal energy cost wrt. one more transaction.

Ember (2025); Energy Institute - Statistical Review of World Energy (2024) - with major processing by Our World in Data. "Share of electricity generated by renewables - Ember and Energy Institute" [dataset]. Ember, "Yearly Electricity Data Europe"; Ember, "Yearly Electricity Data"; Energy Institute, "Statistical Review of World Energy" [original data]. Retrieved from <https://ourworldindata.org/grapher/share-electricity-renewables>.

S.16 Key GHG sources and methodologies

To determine the GHG Emissions, the locations of the nodes are to be determined using public information sites, open-source crawlers and crawlers developed in-house. If no information is available on the geographic distribution of the nodes, reference networks are used which are comparable in terms of their incentivization structure and consensus mechanism. This geo-information is merged with public information from Our World in Data, see citation. The intensity is calculated as the marginal emission wrt. one more transaction.

Ember (2025); Energy Institute - Statistical Review of World Energy (2024) - with major processing by Our World in Data. "Carbon intensity of electricity generation - Ember and Energy Institute" [dataset]. Ember, "Yearly Electricity Data Europe"; Ember, "Yearly Electricity Data"; Energy Institute, "Statistical Review of World Energy" [original data]. Retrieved from <https://ourworldindata.org/grapher/carbon-intensity-electricity> Licenced under CC BY 4.0.



Ethereum Eth

ETH | D5RG2FHH0

Quantitative information

Quantitative sustainability indicators for Ethereum Eth

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Ethereum Eth	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	2159953.20000	kWh/a
S.10 Renewable energy consumption	37.9124101186	%
S.11 Energy intensity	0.00006	kWh
S.12 Scope 1 DLT GHG emissions – Controlled	0.00000	tCO ₂ e
S.13 Scope 2 DLT GHG emissions – Purchased	718.86066	tCO ₂ e
S.14 GHG intensity	0.00002	kgCO ₂ e

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network

upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

S.15 Key energy sources and methodologies

To determine the proportion of renewable energy usage, the locations of the nodes are to be determined using public information sites, open-source crawlers and crawlers developed in-house. If no information is available on the geographic distribution of the nodes, reference networks are used which are comparable in terms of their incentivization structure and consensus mechanism. This geo-information is merged with public information from Our World in Data, see citation. The intensity is calculated as the marginal energy cost wrt. one more transaction.

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S.16 Key GHG sources and methodologies

To determine the GHG Emissions, the locations of the nodes are to be determined using public information sites, open-source crawlers and crawlers developed in-house. If no information is available on the geographic distribution of the nodes, reference networks are used which are comparable in terms of their incentivization structure and consensus mechanism. This geo-information is merged with public information from Our World in Data, see citation. The intensity is calculated as the marginal emission wrt. one more transaction.

Ember (2025); Energy Institute - Statistical Review of World Energy (2024) - with major processing by Our World in Data. "Carbon intensity of electricity generation - Ember and Energy Institute" [dataset]. Ember, "Yearly Electricity Data Europe"; Ember, "Yearly Electricity Data"; Energy Institute, "Statistical Review of World Energy" [original data]. Retrieved from <https://ourworldindata.org/grapher/carbon-intensity-electricity> Licenced under CC BY 4.0.



Quantitative information

Quantitative sustainability indicators for Qubic

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Qubic	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	1909680.00000	kWh/a
S.10 Renewable energy consumption	37.9124101186	%
S.11 Energy intensity	0.01090	kWh
S.12 Scope 1 DLT GHG emissions – Controlled	0.00000	tCO ₂ e
S.13 Scope 2 DLT GHG emissions – Purchased	635.56646	tCO ₂ e
S.14 GHG intensity	0.00363	kgCO ₂ e

Qualitative information

S.4 Consensus Mechanism

The Qubic blockchain utilizes a Proof-of-Work algorithm called Quorum-Based Computation (QBC), designed to combine decentralization, efficiency, and adaptability for secure transaction and smart contract execution.

Core Components:

- Quorum-Based Computation (QBC):

Decisions require agreement from at least 451 out of the top 676 Computers, ensuring reliable and decentralized consensus for transaction validation and smart contract execution.

- Useful Proof-of-Work (uPoW):
AI miners compete to solve computational tasks, determining the ranking of Computers for each epoch (one week). The top-performing Computers qualify to participate in consensus, fostering a dynamic and performance-driven network.
- Spectrum Ledger:
Qubic's equivalent of a blockchain ledger, the Spectrum records validated transactions and smart contract outcomes, ensuring integrity and transparency.
- Dynamic and Adaptive Selection:
Computers are continually reassessed and ranked based on their performance. Computers unable to meet the network's speed or efficiency standards are replaced, maintaining high operational quality.
- Decentralization and Autonomy:
All major decisions, including transaction validation and smart contract execution, are governed by the quorum of Computers, with no single entity having overriding authority.

S.5 Incentive Mechanisms and Applicable Fees

The Qubic blockchain's incentive mechanism and fee structure are designed to reward performance and ensure efficient network operations while maintaining fairness and decentralization.

Incentive Mechanism:

- Revenue for Computers: Qualified Computers earn revenue by validating transactions and executing smart contracts on the Spectrum ledger. Computers are rewarded based on their performance, including transaction processing speed and network compatibility.
- Useful Proof-of-Work (uPoW): AI miners earn recognition by solving computational tasks, ranking Computers for eligibility in the consensus process. While mining does not directly validate transactions, it incentivizes AI innovation and supports the Aigarth ecosystem.
- Performance-Based Rewards: Computers demonstrating consistent speed and compatibility are prioritized, ensuring that high-performance nodes are rewarded. Computers that fail to keep pace are replaced, maintaining network efficiency.

Applicable Fees:

- Transaction Fees: Users pay transaction fees for executing transfers and smart contracts. These fees are distributed among the participating Computers, incentivizing their active involvement in network operations.
- Dynamic Fee Structure: Fees are adjusted based on network demand and transaction complexity, balancing user costs with network sustainability.

S.9 Energy consumption sources and methodologies

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on

assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

S.15 Key energy sources and methodologies

To determine the proportion of renewable energy usage, the locations of the nodes are to be determined using public information sites, open-source crawlers and crawlers developed in-house. If no information is available on the geographic distribution of the nodes, reference networks are used which are comparable in terms of their incentivization structure and consensus mechanism. This geo-information is merged with public information from Our World in Data, see citation. The intensity is calculated as the marginal energy cost wrt. one more transaction.

Ember (2025); Energy Institute - Statistical Review of World Energy (2024) - with major processing by Our World in Data. "Share of electricity generated by renewables - Ember and Energy Institute" [dataset]. Ember, "Yearly Electricity Data Europe"; Ember, "Yearly Electricity Data"; Energy Institute, "Statistical Review of World Energy" [original data]. Retrieved from <https://ourworldindata.org/grapher/share-electricity-renewables>.

S.16 Key GHG sources and methodologies

To determine the GHG Emissions, the locations of the nodes are to be determined using public information sites, open-source crawlers and crawlers developed in-house. If no information is available on the geographic distribution of the nodes, reference networks are used which are comparable in terms of their incentivization structure and consensus mechanism. This geo-information is merged with public information from Our World in Data, see citation. The intensity is calculated as the marginal emission wrt. one more transaction.

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Quantitative information

Quantitative sustainability indicators for Conflux

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Conflux	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	1837140.73200	kWh/a
S.10 Renewable energy consumption	34.4781471084	%
S.11 Energy intensity	0.01013	kWh
S.12 Scope 1 DLT GHG emissions – Controlled	0.00000	tCO ₂ e
S.13 Scope 2 DLT GHG emissions – Purchased	754.94600	tCO ₂ e
S.14 GHG intensity	0.00417	kgCO ₂ e

Qualitative information

S.4 Consensus Mechanism

Conflux operates on a unique Tree-Graph consensus mechanism that combines Optimized Proof of Work (PoW) with Proof of Stake (PoS), allowing high transaction throughput, security, and scalability.

Core Components:

1. Tree-Graph Structure:

- Concurrent Block Production: Conflux's Tree-Graph model enables blocks to be produced in parallel, rather than sequentially in a single chain. This structure significantly increases transaction throughput and efficiency compared to traditional blockchains.
- Hierarchy for Fork Reduction: Unlike typical PoW blockchains where forks are common, Conflux's Tree-Graph organizes blocks hierarchically, allowing multiple chains to coexist without causing

divergences. This minimizes the need for forks, ensuring stability and continuity in block production.

2. Optimized Proof of Work (PoW):

Conflux uses an optimized PoW model to maintain security and decentralization, offering similar security guarantees to traditional PoW systems but with enhanced efficiency, allowing high-performance block processing.

3. Proof of Stake (PoS) Integration:

- PoS for Finality: PoS nodes in Conflux are selected based on the amount of staked CFX (Conflux's native token). These nodes sign pivot blocks to finalize them, reducing the probability of forks and ensuring rapid finality.
- Balance Between PoW and PoS: By combining PoW and PoS, Conflux achieves a balanced, secure consensus system that leverages PoW's security while incorporating PoS for faster finality.

S.5 Incentive Mechanisms and Applicable Fees

Conflux incentivizes network participation and security through block rewards, transaction fees, and staking rewards, along with unique ecosystem support and storage fee structures.

Incentive Mechanisms:

1. Block Rewards and Transaction Fees for Miners:

Miners receive CFX rewards not only for mining blocks but also for securing the network. These rewards, including transaction fees, create an ongoing incentive for miners to participate actively and uphold network stability.

2. Staking Rewards for PoS Nodes:

PoS nodes, responsible for signing and finalizing pivot blocks, earn staking rewards based on their staked CFX amount. This reward structure encourages reliable PoS participation, enhancing network security and finality.

3. Dynamic Gas Fee Model:

- Ethereum-Like Gas Model: Conflux uses a gas model similar to Ethereum's, where fees are calculated based on the computational resources required (measured in gas) and the current gas price, which adjusts based on network demand.
- Dynamic Adjustment: During high network demand, gas fees increase to help manage congestion, while fees decrease in low-demand periods to promote network activity.

4. Ecosystem Fund Allocation:

A portion of transaction fees is allocated to the Conflux ecosystem fund, which supports long-term network development, community initiatives, and ecosystem growth. This fund helps sustain the network and fosters innovation within the ecosystem.

5. Storage Fee Model:

Conflux incorporates a storage fee to discourage unnecessary data storage on the blockchain. This model supports long-term sustainability by reducing blockchain bloat, helping to maintain efficient network performance over time.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The

energy consumption of the hardware devices was measured in certified test laboratories. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

To determine the energy consumption of a token, the energy consumption of the network(s) conflux is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

S.15 Key energy sources and methodologies

To determine the proportion of renewable energy usage, the locations of the nodes are to be determined using public information sites, open-source crawlers and crawlers developed in-house. If no information is available on the geographic distribution of the nodes, reference networks are used which are comparable in terms of their incentivization structure and consensus mechanism. This geo-information is merged with public information from Our World in Data, see citation. The intensity is calculated as the marginal energy cost wrt. one more transaction.

Ember (2025); Energy Institute - Statistical Review of World Energy (2024) - with major processing by Our World in Data. "Share of electricity generated by renewables - Ember and Energy Institute" [dataset]. Ember, "Yearly Electricity Data Europe"; Ember, "Yearly Electricity Data"; Energy Institute, "Statistical Review of World Energy" [original data]. Retrieved from <https://ourworldindata.org/grapher/share-electricity-renewables>.

S.16 Key GHG sources and methodologies

To determine the GHG Emissions, the locations of the nodes are to be determined using public information sites, open-source crawlers and crawlers developed in-house. If no information is available on the geographic distribution of the nodes, reference networks are used which are comparable in terms of their incentivization structure and consensus mechanism. This geo-information is merged with public information from Our World in Data, see citation. The intensity is calculated as the marginal emission wrt. one more transaction.

Ember (2025); Energy Institute - Statistical Review of World Energy (2024) - with major processing by Our World in Data. "Carbon intensity of electricity generation - Ember and Energy Institute" [dataset]. Ember, "Yearly Electricity Data Europe"; Ember, "Yearly Electricity Data"; Energy Institute, "Statistical Review of World Energy" [original data]. Retrieved from <https://ourworldindata.org/grapher/carbon-intensity-electricity> Licenced under CC BY 4.0.



Quantitative information

Quantitative sustainability indicators for Gram

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Gram	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	1419120.00000	kWh/a
S.10 Renewable energy consumption	37.9124101186	%
S.11 Energy intensity	0.00003	kWh
S.12 Scope 1 DLT GHG emissions – Controlled	0.00000	tCO ₂ e
S.13 Scope 2 DLT GHG emissions – Purchased	472.30168	tCO ₂ e
S.14 GHG intensity	0.00001	kgCO ₂ e

Qualitative information

S.4 Consensus Mechanism

The Open Network uses a Proof-of-Stake (PoS) consensus mechanism based on the Catchain protocol. Validators stake GRAM to participate in block production, transaction validation, and network security. Catchain provides Byzantine Fault Tolerant (BFT) consensus across the network's sharded architecture, enabling multiple shardchains to process transactions in parallel while maintaining a consistent global state. Validators are selected and rotated periodically, and once consensus is reached, blocks achieve deterministic finality.

S.5 Incentive Mechanisms and Applicable Fees

The Open Network incentivizes network participation through staking rewards and transaction fees. Validators receive rewards for producing blocks, validating transactions, and maintaining network security, with rewards distributed according to their participation and stake. Transaction fees are

paid in GRAM and vary depending on the computational resources required by a transaction. The protocol also applies penalties to validators that fail to meet their obligations or act maliciously, encouraging reliable network operation and honest participation.

S.9 Energy consumption sources and methodologies

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

S.15 Key energy sources and methodologies

To determine the proportion of renewable energy usage, the locations of the nodes are to be determined using public information sites, open-source crawlers and crawlers developed in-house. If no information is available on the geographic distribution of the nodes, reference networks are used which are comparable in terms of their incentivization structure and consensus mechanism. This geo-information is merged with public information from Our World in Data, see citation. The intensity is calculated as the marginal energy cost wrt. one more transaction.

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S.16 Key GHG sources and methodologies

To determine the GHG Emissions, the locations of the nodes are to be determined using public information sites, open-source crawlers and crawlers developed in-house. If no information is available on the geographic distribution of the nodes, reference networks are used which are comparable in terms of their incentivization structure and consensus mechanism. This geo-information is merged with public information from Our World in Data, see citation. The intensity is calculated as the marginal emission wrt. one more transaction.

Ember (2025); Energy Institute - Statistical Review of World Energy (2024) - with major processing by Our World in Data. "Carbon intensity of electricity generation - Ember and Energy Institute" [dataset]. Ember, "Yearly Electricity Data Europe"; Ember, "Yearly Electricity Data"; Energy Institute, "Statistical Review of World Energy" [original data]. Retrieved from <https://ourworldindata.org/grapher/carbon-intensity-electricity> Licenced under CC BY 4.0.



Quantitative information

Quantitative sustainability indicators for NEAR Protocol

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	NEAR Protocol	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	920545.52519	kWh/a
S.10 Renewable energy consumption	37.4191676679	%
S.11 Energy intensity	0.00006	kWh
S.12 Scope 1 DLT GHG emissions – Controlled	0.00000	tCO ₂ e
S.13 Scope 2 DLT GHG emissions – Purchased	310.00053	tCO ₂ e
S.14 GHG intensity	0.00002	kgCO ₂ e

Qualitative information

S.4 Consensus Mechanism

NEAR Protocol is present on the following networks: Binance Smart Chain, Ethereum, Near Protocol.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be

selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

The NEAR Protocol uses a unique consensus mechanism combining Proof of Stake (PoS) and a novel approach called Doomslug, which enables high efficiency, fast transaction processing, and secure finality in its operations.

Core Concepts:

1. Doomslug and Proof of Stake:

- NEAR's consensus mechanism primarily revolves around PoS, where validators stake NEAR tokens to participate in securing the network. However, NEAR's implementation is enhanced with the Doomslug protocol.
- Doomslug allows the network to achieve fast block finality by requiring blocks to be confirmed in two stages. Validators propose blocks in the first step, and finalization occurs when two-thirds of validators approve the block, ensuring rapid transaction confirmation.

2. Sharding with Nightshade:

- NEAR uses a dynamic sharding technique called Nightshade. This method splits the network into multiple shards, enabling parallel processing of transactions across the network, thus significantly increasing throughput. Each shard processes a portion of transactions, and the outcomes are merged into a single "snapshot" block.
- This sharding approach ensures scalability, allowing the network to grow and handle increasing demand efficiently.

Consensus Process:

1. Validator Selection:

- Validators are selected to propose and validate blocks based on the amount of NEAR tokens staked. This selection process is designed to ensure that only validators with significant stakes and community trust participate in securing the network.

2. Transaction Finality:

- NEAR achieves transaction finality through its PoS-based system, where validators vote on blocks. Once two-thirds of validators approve a block, it reaches finality under Doomslug, meaning that no forks can alter the confirmed state.

3. Epochs and Rotation:

- Validators are rotated in epochs to ensure fairness and decentralization. Epochs are intervals in which validators are reshuffled, and new block proposers are selected, ensuring a balance between performance and decentralization.

S.5 Incentive Mechanisms and Applicable Fees

NEAR Protocol is present on the following networks: Binance Smart Chain, Ethereum, Near Protocol.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

NEAR Protocol employs several economic mechanisms to secure the network and incentivize participation.

Incentive Mechanisms to Secure Transactions:

1. Staking Rewards:

Validators and delegators secure the network by staking NEAR tokens. Validators earn around 5% annual inflation, with 90% of newly minted tokens distributed as staking rewards. Validators propose blocks, validate transactions, and receive a share of these rewards based on their staked tokens. Delegators earn rewards proportional to their delegation, encouraging broad participation.

2. Delegation:

Token holders can delegate their NEAR tokens to validators to increase the validator's stake and improve the chances of being selected to validate transactions. Delegators share in the validator's rewards based on their delegated tokens, incentivizing users to support reliable validators.

3. Slashing and Economic Penalties:

Validators face penalties for malicious behavior, such as failing to validate correctly or acting dishonestly. The slashing mechanism enforces security by deducting a portion of their staked tokens, ensuring validators follow the network's best interests.

4. Epoch Rotation and Validator Selection:

Validators are rotated regularly during epochs to ensure fairness and prevent centralization. Each epoch reshuffles validators, allowing the protocol to balance decentralization with performance.

Fees on the NEAR Blockchain:

1. Transaction Fees:

Users pay fees in NEAR tokens for transaction processing, which are burned to reduce the total circulating supply, introducing a potential deflationary effect over time. Validators also receive a portion of transaction fees as additional rewards, providing an ongoing incentive for network maintenance.

2. Storage Fees:

NEAR Protocol charges storage fees based on the amount of blockchain storage consumed by accounts, contracts, and data. This requires users to hold NEAR tokens as a deposit proportional to their storage usage, ensuring the efficient use of network resources.

3. Redistribution and Burning:

A portion of the transaction fees (burned NEAR tokens) reduces the overall supply, while the rest is distributed to validators as compensation for their work. The burning mechanism helps maintain long-term economic sustainability and potential value appreciation for NEAR holders.

4. Reserve Requirement:

Users must maintain a minimum account balance and reserves for data storage, encouraging efficient use of resources and preventing spam attacks.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The

energy consumption of the hardware devices was measured in certified test laboratories. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

To determine the energy consumption of a token, the energy consumption of the network(s) binance_smart_chain, ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

S.15 Key energy sources and methodologies

To determine the proportion of renewable energy usage, the locations of the nodes are to be determined using public information sites, open-source crawlers and crawlers developed in-house. If no information is available on the geographic distribution of the nodes, reference networks are used which are comparable in terms of their incentivization structure and consensus mechanism. This geo-information is merged with public information from Our World in Data, see citation. The intensity is calculated as the marginal energy cost wrt. one more transaction.

Ember (2025); Energy Institute - Statistical Review of World Energy (2024) - with major processing by Our World in Data. "Share of electricity generated by renewables - Ember and Energy Institute" [dataset]. Ember, "Yearly Electricity Data Europe"; Ember, "Yearly Electricity Data"; Energy Institute, "Statistical Review of World Energy" [original data]. Retrieved from <https://ourworldindata.org/grapher/share-electricity-renewables>.

S.16 Key GHG sources and methodologies

To determine the GHG Emissions, the locations of the nodes are to be determined using public information sites, open-source crawlers and crawlers developed in-house. If no information is available on the geographic distribution of the nodes, reference networks are used which are comparable in terms of their incentivization structure and consensus mechanism. This geo-information is merged with public information from Our World in Data, see citation. The intensity is calculated as the marginal emission wrt. one more transaction.

Ember (2025); Energy Institute - Statistical Review of World Energy (2024) - with major processing by Our World in Data. "Carbon intensity of electricity generation - Ember and Energy Institute" [dataset]. Ember, "Yearly Electricity Data Europe"; Ember, "Yearly Electricity Data"; Energy Institute, "Statistical Review of World Energy" [original data]. Retrieved from <https://ourworldindata.org/grapher/carbon-intensity-electricity> Licenced under CC BY 4.0.



Quantitative information

Quantitative sustainability indicators for Avalanche AVAX

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Avalanche AVAX	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	791498.20011	kWh/a
S.10 Renewable energy consumption	36.3152910542	%
S.11 Energy intensity	0.00006	kWh
S.12 Scope 1 DLT GHG emissions – Controlled	0.00000	tCO ₂ e
S.13 Scope 2 DLT GHG emissions – Purchased	297.18051	tCO ₂ e
S.14 GHG intensity	0.00002	kgCO ₂ e

Qualitative information

S.4 Consensus Mechanism

Avalanche AVAX is present on the following networks: Avalanche, Avalanche X Chain.

The Avalanche C-Chain uses the Snowman++ consensus mechanism, which is Avalanche's consensus model for linear blockchains and is implemented through the ProposerVM wrapper. Under this model, validators repeatedly query a small random subset of other validators and converge on a preferred block once the required confidence thresholds are met. Only Primary Network validators are entitled to validate the C-Chain. To participate as a validator on Avalanche mainnet, a node must stake a minimum number of token. Token holders may also participate indirectly by delegating an existing validator. Validator identity and admission to staking require the relevant staking credentials, including BLS proofs of possession under the current staking framework. For block production, Snowman++ uses stake-weighted proposer windows. Through the ProposerVM, block-building opportunities are assigned to proposers in 5-second windows, after which block production may fall

back more broadly to validators if necessary. This mechanism is intended to regulate block production while preserving network liveness. Consensus voting itself remains based on repeated sub-sampled polling rather than fixed validator committees. Avalanche documentation describes the finality model as sub-second and treated by the protocol as final and irreversible once accepted, while noting that safety is probabilistic in the formal sense because the probability of conflicting acceptance can be reduced to an arbitrarily low level through the protocol parameters. The protocol does not rely on slashing of staked principal. Instead, validator reward eligibility depends on compliance with protocol conditions, including uptime requirements.

The Avalanche X-Chain uses the Avalanche consensus protocol, which relies on repeated subsampling of validators to reach agreement on transactions.

S.5 Incentive Mechanisms and Applicable Fees

Avalanche AVAX is present on the following networks: Avalanche, Avalanche X Chain.

The Avalanche C-Chain is secured economically through the native AVAX token. Validator incentives are based primarily on staking rewards, not on redistribution of C-Chain transaction fees. A fixed amount of 360 million AVAX was minted at genesis, while additional AVAX is minted over time as validator rewards, subject to Avalanche's capped token supply framework. Validator rewards are paid at the end of the staking period and are determined by factors such as the validator's stake and compliance with staking conditions. Unlike some proof-of-stake systems, the Avalanche Primary Network does not use slashing of bonded principal as an ordinary penalty mechanism. Instead, the main protocol-level economic consequence for underperformance is the loss of reward eligibility. Where a validator fails to satisfy the applicable uptime requirement during its staking term, that validator does not receive the corresponding staking reward. Transaction fees apply on the C-Chain for transfers and smart-contract execution. The fee model follows EIP-1559 logic, meaning that transactions are priced through a dynamic base fee mechanism. In contrast to Ethereum's validator tip model, C-Chain transaction fees are burned rather than distributed to validators. This means that C-Chain fees function as a supply-reduction mechanism and are intended in part to offset inflation arising from the minting of validator rewards. In addition to ordinary transaction and smart-contract execution fees, Avalanche documentation also recognises protocol fees in connection with other network operations on other chains of the Primary Network, such as certain import or export operations and staking-related actions. However, for the C-Chain itself, the core applicable fee category is the gas fee for transaction inclusion and contract execution, and those fees are handled through the protocol burn mechanism rather than paid to validators or a treasury.

Validator incentives on the X-Chain are indirect and come from network-wide AVAX issuance. Transaction fees are fixed and burned to prevent spam and reduce the total supply of AVAX over time

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital

Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

To determine the energy consumption of a token, the energy consumption of the network(s) avalanche, avalanche_x_chain is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

S.15 Key energy sources and methodologies

To determine the proportion of renewable energy usage, the locations of the nodes are to be determined using public information sites, open-source crawlers and crawlers developed in-house. If no information is available on the geographic distribution of the nodes, reference networks are used which are comparable in terms of their incentivization structure and consensus mechanism. This geo-information is merged with public information from Our World in Data, see citation. The intensity is calculated as the marginal energy cost wrt. one more transaction.

Ember (2025); Energy Institute - Statistical Review of World Energy (2024) - with major processing by Our World in Data. "Share of electricity generated by renewables - Ember and Energy Institute" [dataset]. Ember, "Yearly Electricity Data Europe"; Ember, "Yearly Electricity Data"; Energy Institute, "Statistical Review of World Energy" [original data]. Retrieved from <https://ourworldindata.org/grapher/share-electricity-renewables>.

S.16 Key GHG sources and methodologies

To determine the GHG Emissions, the locations of the nodes are to be determined using public information sites, open-source crawlers and crawlers developed in-house. If no information is available on the geographic distribution of the nodes, reference networks are used which are comparable in terms of their incentivization structure and consensus mechanism. This geo-information is merged with public information from Our World in Data, see citation. The intensity is calculated as the marginal emission wrt. one more transaction.

Ember (2025); Energy Institute - Statistical Review of World Energy (2024) - with major processing by Our World in Data. "Carbon intensity of electricity generation - Ember and Energy Institute" [dataset]. Ember, "Yearly Electricity Data Europe"; Ember, "Yearly Electricity Data"; Energy Institute, "Statistical Review of World Energy" [original data]. Retrieved from <https://ourworldindata.org/grapher/carbon-intensity-electricity> Licenced under CC BY 4.0.



Cardano ADA

ADA | 76QS7QCXB

Quantitative information

Quantitative sustainability indicators for Cardano ADA

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Cardano ADA	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	773946.00000	kWh/a
S.10 Renewable energy consumption	37.4187578605	%
S.11 Energy intensity	0.00109	kWh
S.12 Scope 1 DLT GHG emissions – Controlled	0.00000	tCO ₂ e
S.13 Scope 2 DLT GHG emissions – Purchased	260.63169	tCO ₂ e
S.14 GHG intensity	0.00037	kgCO ₂ e

Qualitative information

S.4 Consensus Mechanism

Core Components: Cardano uses the Ouroboros consensus mechanism, a Proof of Stake (PoS) protocol designed for scalability, security, and energy efficiency.

Core Concepts:

1. Proof of Stake (PoS): Validators (called slot leaders) are selected based on the amount of ADA they have staked, rather than solving complex computational puzzles. Validators propose and validate blocks, which are added to the blockchain.
2. Epochs and Slot Leaders: Cardano divides time into epochs (fixed time periods), each of which is subdivided into slots. Slot leaders are selected for each slot to validate and propose blocks. Slot leaders are chosen randomly based on the amount of ADA staked. More stake increases the

probability of being selected. Validators are responsible for confirming transactions during their slot and passing the block to the next slot leader.

3. Delegation and Staking Pools: ADA holders can delegate their tokens to staking pools, which increases the pool's chances of being selected to validate a block. The pool operator and delegators share the rewards based on their stakes. This system ensures that participants who do not want to operate a full validator node can still earn rewards and contribute to network security by supporting trusted staking pools.
4. Security and Adversary Resistance: Ouroboros ensures security even in the presence of potential attacks. It assumes that adversaries may attempt to propagate alternative chains or send arbitrary messages. The protocol is secure as long as more than 51% of the staked ADA is controlled by honest participants. Settlement Delay: To protect against adversarial attacks, the new slot leader must consider the last few blocks as transient. Only the blocks preceding these are treated as finalized, ensuring that chain finality is secure against manipulation attempts. This mechanism also allows participants to temporarily go offline and resynchronize as long as they are not disconnected for more than the settlement delay period.
5. Chain Selection: Cardano's nodes adopt the longest valid chain rule: each node stores a local copy of the blockchain and replaces it with any discovered valid, longer chain. This ensures that all nodes eventually converge on a single version of the blockchain, maintaining network consistency.

S.5 Incentive Mechanisms and Applicable Fees

Cardano uses incentive mechanisms to ensure network security and decentralization through staking rewards, slashing mechanisms, and transaction fees.

Incentive Mechanisms to Secure Transactions:

1. Staking Rewards:
 - Validators, known as slot leaders, secure the network by validating transactions and creating new blocks. To participate, validators must stake ADA, and those with larger stakes are more likely to be selected as slot leaders.
 - Validators are rewarded with newly minted ADA and transaction fees for successfully producing blocks and validating transactions.
 - Delegators, who may not wish to run a validator node, can delegate their ADA to staking pools. By doing so, they contribute to the network's security and earn a share of the rewards earned by the pool. The rewards are distributed proportionally based on the amount of ADA delegated.
2. Slashing Mechanism:
 - To prevent malicious behavior, Cardano employs a slashing mechanism. Validators who act dishonestly, fail to validate transactions properly, or produce incorrect blocks face penalties that involve the slashing of a portion of their staked ADA.
 - This provides strong economic incentives for validators to act honestly and ensures the network's integrity and security.
3. Delegation and Pool Operation:
 - Staking pools can charge operation fees (a margin on rewards) to maintain their infrastructure. This includes fixed costs set by pool operators. Delegators earn rewards after pool fees are deducted, providing a balanced incentive for both operators and delegators to participate actively.
 - Rewards are distributed at the end of each epoch, where staking pool performance and participation determine the distribution of ADA rewards to all stakeholders.

Applicable Fees:

1. Transaction Fees:

- Transaction fees on Cardano are paid in ADA and are generally low. They are calculated based on the size of the transaction and the network's current demand. These fees are paid to validators for including transactions in new blocks.
- The fee formula is: $a + b \times \text{size}$, where a is a constant (typically 0.155381 ADA), b is a coefficient related to the transaction size (0.000043946 ADA/byte), and size refers to the transaction size in bytes. This ensures that the fee adapts based on network load and the size of each transaction.

2. Staking Pool Fees:

- Staking pool operators charge operational costs and a margin fee, which covers the cost of running and maintaining the staking pool. These fees vary between pools but ensure that operators can continue to provide their services while offering rewards to delegators.
- After the operator's fee, the remaining rewards are distributed among the delegators based on the size of their stake.

S.9 Energy consumption sources and methodologies

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

S.15 Key energy sources and methodologies

To determine the proportion of renewable energy usage, the locations of the nodes are to be determined using public information sites, open-source crawlers and crawlers developed in-house. If no information is available on the geographic distribution of the nodes, reference networks are used which are comparable in terms of their incentivization structure and consensus mechanism. This geo-information is merged with public information from Our World in Data, see citation. The intensity is calculated as the marginal energy cost wrt. one more transaction.

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S.16 Key GHG sources and methodologies

To determine the GHG Emissions, the locations of the nodes are to be determined using public information sites, open-source crawlers and crawlers developed in-house. If no information is

available on the geographic distribution of the nodes, reference networks are used which are comparable in terms of their incentivization structure and consensus mechanism. This geo-information is merged with public information from Our World in Data, see citation. The intensity is calculated as the marginal emission wrt. one more transaction.

Ember (2025); Energy Institute - Statistical Review of World Energy (2024) - with major processing by Our World in Data. "Carbon intensity of electricity generation - Ember and Energy Institute" [dataset]. Ember, "Yearly Electricity Data Europe"; Ember, "Yearly Electricity Data"; Energy Institute, "Statistical Review of World Energy" [original data]. Retrieved from <https://ourworldindata.org/grapher/carbon-intensity-electricity> Licenced under CC BY 4.0.



Quantitative information

Quantitative sustainability indicators for MultiversX EGLD

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	MultiversX EGLD	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	716130.81211	kWh/a
S.10 Renewable energy consumption	34.4781522363	%
S.11 Energy intensity	0.00033	kWh
S.12 Scope 1 DLT GHG emissions – Controlled	0.00000	tCO ₂ e
S.13 Scope 2 DLT GHG emissions – Purchased	295.04305	tCO ₂ e
S.14 GHG intensity	0.00013	kgCO ₂ e

Qualitative information

S.4 Consensus Mechanism

MultiversX EGLD is present on the following networks: Binance Smart Chain, Multiversx.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be

selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

MultiversX employs a consensus model called Secure Proof of Stake (SPoS), which integrates elements of Proof of Stake (PoS) with a rapid, randomized validator selection process. SPoS enables efficient and scalable consensus with high throughput and low latency.

Core Components:

1. Secure Proof of Stake (SPoS):

- Randomized Validator Selection: Validators are selected in under 100 milliseconds based on their stake, with a quick rotation to maintain efficiency and prevent centralization.
- Validator and Observer Nodes: Validator nodes process transactions and produce blocks, while Observer nodes are read-only, providing data access and network monitoring.

2. Adaptive State Sharding:

Parallel Transaction Processing: Adaptive State Sharding splits the network into shards, allowing for simultaneous transaction processing across multiple shards, which enhances scalability and network performance.

3. Meta Chain Coordination:

Cross-Shard Finalization: The Meta Chain manages cross-shard transactions, finalizing blocks and ensuring data consistency between shards.

S.5 Incentive Mechanisms and Applicable Fees

MultiversX EGLD is present on the following networks: Binance Smart Chain, Multiversx.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-

finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

MultiversX incentivizes network participation through staking rewards and transaction fees, supporting network security and performance.

Incentive Mechanisms:

Staking Rewards for Validators and Delegators:

- Validator Rewards: Validators earn EGLD tokens for processing transactions and producing blocks.
- Delegation Rewards: EGLD holders can delegate their tokens to validators to receive a portion of the staking rewards without managing a node.

Applicable Fees:

1. Transaction Fees:

Fee Structure: Fees are paid in EGLD and vary based on transaction complexity and size, covering smart contract execution, asset transfers, and other network interactions.

2. Delegation Opportunities:

Passive Staking for EGLD Holders: EGLD holders who delegate their tokens share in staking rewards, supporting network security and earning passive income.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

To determine the energy consumption of a token, the energy consumption of the network(s) binance_smart_chain is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

S.15 Key energy sources and methodologies

To determine the proportion of renewable energy usage, the locations of the nodes are to be determined using public information sites, open-source crawlers and crawlers developed in-house. If no information is available on the geographic distribution of the nodes, reference networks are used which are comparable in terms of their incentivization structure and consensus mechanism. This geo-information is merged with public information from Our World in Data, see citation. The intensity is calculated as the marginal energy cost wrt. one more transaction.

Ember (2025); Energy Institute - Statistical Review of World Energy (2024) - with major processing by Our World in Data. "Share of electricity generated by renewables - Ember and Energy Institute" [dataset]. Ember, "Yearly Electricity Data Europe"; Ember, "Yearly Electricity Data"; Energy Institute, "Statistical Review of World Energy" [original data]. Retrieved from <https://ourworldindata.org/grapher/share-electricity-renewables>.

S.16 Key GHG sources and methodologies

To determine the GHG Emissions, the locations of the nodes are to be determined using public information sites, open-source crawlers and crawlers developed in-house. If no information is available on the geographic distribution of the nodes, reference networks are used which are comparable in terms of their incentivization structure and consensus mechanism. This geo-information is merged with public information from Our World in Data, see citation. The intensity is calculated as the marginal emission wrt. one more transaction.

Ember (2025); Energy Institute - Statistical Review of World Energy (2024) - with major processing by Our World in Data. "Carbon intensity of electricity generation - Ember and Energy Institute" [dataset]. Ember, "Yearly Electricity Data Europe"; Ember, "Yearly Electricity Data"; Energy Institute, "Statistical Review of World Energy" [original data]. Retrieved from <https://ourworldindata.org/grapher/carbon-intensity-electricity> Licenced under CC BY 4.0.



Quantitative information

Quantitative sustainability indicators for Polkadot DOT

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Polkadot DOT	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	642546.00000	kWh/a
S.10 Renewable energy consumption	39.0062350679	%
S.11 Energy intensity	0.00004	kWh
S.12 Scope 1 DLT GHG emissions – Controlled	0.00000	tCO ₂ e
S.13 Scope 2 DLT GHG emissions – Purchased	190.07953	tCO ₂ e
S.14 GHG intensity	0.00001	kgCO ₂ e

Qualitative information

S.4 Consensus Mechanism

Polkadot DOT is present on the following networks: Astar, Polkadot, Statemint.

Astar uses a hybrid consensus mechanism that combines Proof of Stake (PoS) and Delegated Proof of Stake (DPoS), with the added feature of Sharded Multichain capabilities. The primary goal is to provide a scalable, interoperable, and decentralized platform for building decentralized applications (dApps), which can run on multiple blockchains in parallel.

Key Features of Astar's Consensus Mechanism:

1. Proof of Stake (PoS): In Astar, validators participate by staking ASTR tokens, the native currency of the network. The more tokens staked, the higher the chances of being selected as a validator. Validators are responsible for validating transactions and securing the network. Validators receive block rewards for their efforts, which are paid in ASTR tokens.

2. Delegated Proof of Stake (DPoS): Astar incorporates DPoS to allow ASTR token holders to vote for validators. Token holders delegate their voting power to trusted validators, who then produce blocks and validate transactions. This ensures greater decentralization by allowing the community to have a direct say in who validates the network. Delegators receive a share of the block rewards earned by their selected validators.
3. Sharded Multichain: Astar's consensus mechanism allows for multichain execution via Parachains in the Polkadot ecosystem, enabling Astar to process multiple parallel chains and increase scalability. This sharding mechanism ensures that Astar can scale effectively, maintaining high throughput while decentralizing the network.
4. Finality: Astar leverages Polkadot's GRANDPA (GHOST-based Recursive Ancestor Deriving Prefix Agreement) finality gadget for fast and deterministic finality. Once a block is finalized, it is irreversible, ensuring the integrity and security of transactions.

Polkadot, a heterogeneous multi-chain framework designed to enable different blockchains to interoperate, uses a sophisticated consensus mechanism known as Nominated Proof-of-Stake (NPoS). This mechanism combines elements of Proof-of-Stake (PoS) and a layered consensus model involving multiple roles and stages.

Core Components:

1. Validators: Validators are responsible for producing new blocks and finalizing the relay chain, Polkadot's main chain. They stake DOT tokens and validate transactions, ensuring the security and integrity of the network.
2. Nominators: Nominators delegate their stake to trusted validators, choosing which validators they believe will act honestly and effectively. They share in the rewards and penalties of the validators they nominate.
3. Collators: Collators maintain parachains (individual blockchains that connect to the Polkadot relay chain) by collecting transactions from users and producing state transition proofs for validators.
4. Fishermen: Fishermen monitor the network for malicious activity. They report bad behavior to the validators to help maintain network security.

Consensus Process: Polkadot's consensus mechanism operates through a combination of two key protocols: GRANDPA (GHOST-based Recursive Ancestor Deriving Prefix Agreement) and BABE (Blind Assignment for Blockchain Extension).

1. BABE (Block Production): BABE is the block production mechanism. It operates similarly to a lottery, where validators are pseudo-randomly assigned slots to produce blocks based on their stake. Each validator signs the blocks they produce, which are then propagated through the network.
2. GRANDPA (Finality): GRANDPA is the finality gadget that provides a higher level of security by finalizing blocks after they are produced. Unlike traditional blockchains where blocks are considered final after a number of confirmations, GRANDPA allows for asynchronous finality. Validators vote on chains, and once a supermajority agrees, the chain is finalized instantly.

Detailed Steps:

1. Block Production (BABE):
 - Slot Allocation: Validators are selected to produce blocks in specific time slots.
 - Block Proposal: The selected validator for a slot proposes a block, including new transactions and state changes.
2. Block Propagation and Preliminary Consensus: Proposed blocks are propagated across the network, where other validators verify the correctness of the transactions and state transitions.

3. Finalization (GRANDPA):

- Voting on Blocks: Validators vote on the chains they believe to be the correct history.
- Supermajority Agreement: Once more than two-thirds of validators agree on a block, it is finalized.
- Instant Finality: This finality process ensures that once a block is finalized, it is irreversible and becomes part of the canonical chain.

4. Rewards and Penalties: Validators and nominators earn rewards for participating in the consensus process and maintaining network security. Misbehavior, such as producing invalid blocks or being offline, results in penalties, including slashing of staked tokens.

Statemint is a common-good parachain on the Polkadot and Kusama networks, designed to handle asset management and issuance efficiently while leveraging Polkadot's shared security model.

Core Components:

- Relay Chain Integration: Statemint inherits its consensus mechanism from the Polkadot Relay Chain, which operates on a Nominated Proof of Stake (NPoS) model. This model ensures robust security and decentralization by relying on validators and nominators.
- Shared Security: As a parachain, Statemint utilizes the Polkadot Relay Chain's validators for block validation, ensuring high security and interoperability without requiring independent validators.
- Collator Nodes: Statemint employs collator nodes to aggregate transactions into blocks and submit them to the Relay Chain validators for finalization. Collators do not participate in consensus directly but play a key role in transaction processing.
- Immediate Finality: The underlying Polkadot consensus mechanism ensures instant finality using the GRANDPA (GHOST-based Recursive Ancestor Deriving Prefix Agreement) protocol, which provides secure and efficient transaction confirmation.

S.5 Incentive Mechanisms and Applicable Fees

Polkadot DOT is present on the following networks: Astar, Polkadot, Statemint.

Astar incentivizes network participation through block rewards, transaction fees, and staking rewards while encouraging governance via delegated voting.

Incentive Mechanism:

1. Staking Rewards: Validators earn ASTR tokens for validating transactions and securing the network. The more tokens staked, the higher the chances of validating blocks.
2. Delegated Proof of Stake (DPoS): ASTR token holders can delegate their tokens to validators, sharing in the rewards based on the performance of their chosen validators.
3. Cross-Chain dApp Rewards: Developers deploying dApps on Astar earn rewards for using the network's multichain capabilities.
4. Governance Participation: ASTR token holders participate in on-chain governance to vote on proposals and protocol changes.

Applicable Fees:

1. Transaction Fees: Users pay fees in ASTR tokens for transactions. These are collected by validators who process the transactions.
2. dApp Execution Fees: Developers pay for smart contract execution based on resource demands.
3. Cross-Chain Fees: Additional fees apply for asset transfers and interactions between different blockchain networks.

4. Parachain Slot Fees: Astar incurs fees for its parachain slot on the Polkadot network to ensure interoperability.

Polkadot uses a consensus mechanism called Nominated Proof-of-Stake (NPoS), which involves a combination of validators, nominators, and a unique layered consensus process to secure the network:

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are responsible for producing new blocks and finalizing the relay chain. They are incentivized with staking rewards, which are distributed in proportion to their stake and their performance in the consensus process. Validators earn these rewards for maintaining uptime and correctly validating transactions.
- Commission: Validators can set a commission rate that they charge on the rewards earned by their nominators. This incentivizes them to perform well to attract more nominators.

2. Nominators:

- Delegation: Nominators stake their tokens by delegating them to trusted validators. They share in the rewards earned by the validators they support. This mechanism incentivizes nominators to carefully choose reliable validators.
- Rewards Distribution: The rewards are distributed among validators and their nominators based on the amount of stake contributed by each party. This ensures that both parties are incentivized to maintain the network's security.

3. Collators:

Parachain Maintenance: Collators maintain parachains by collecting transactions and producing state transition proofs for validators. They are incentivized through rewards for their role in keeping the parachain operational and secure.

4. Fishermen:

Monitoring: Fishermen are responsible for monitoring the network for malicious activities. They are rewarded for identifying and reporting malicious behavior, which helps maintain the network's security.

5. Economic Penalties:

- Slashing: Validators and nominators face penalties in the form of slashing if they engage in malicious activities such as double-signing or being offline for extended periods. Slashing results in the loss of a portion of their staked tokens, which serves as a strong deterrent against bad behavior.
- Unbonding Period: To withdraw staked tokens, participants must go through an unbonding period during which their tokens are still at risk of being slashed. This ensures continued network security even when validators or nominators decide to exit.

Fees on the Polkadot Blockchain:

1. Transaction Fees:

- Dynamic Fees: Transaction fees on Polkadot are dynamic, adjusting based on network demand and the complexity of the transaction. This model ensures that fees remain fair and proportional to the network's usage.
- Fee Burn: A portion of the transaction fees is burned (permanently removed from circulation), which helps to control inflation and can potentially increase the value of the remaining tokens.

2. Smart Contract Fees:

Execution Costs: Fees for deploying and interacting with smart contracts on Polkadot are based on the computational resources required. This encourages efficient use of network resources.

3. Parachain Slot Auction Fees:

Bidding for Slots: Projects that want to secure a parachain slot must participate in a slot auction. They bid DOT tokens, and the highest bidders win the right to operate a parachain for a specified period. This process ensures that only serious projects with significant backing can secure parachain slots, contributing to the network's overall quality and security.

Statemint is a common-good parachain on the Polkadot and Kusama networks, designed to enable efficient asset management while benefiting from Polkadot's shared security and governance model.

Incentive Mechanisms:

- Relay Chain Validators: Validators securing the Polkadot Relay Chain are indirectly incentivized through block rewards and transaction fees collected across all parachains, including Statemint. This ensures the stability and security of the network without requiring Statemint-specific rewards.
- Collator Compensation: Collator nodes aggregate transactions and produce blocks for Statemint. They may be compensated through external arrangements, such as subsidies or user-driven incentives, depending on governance decisions and usage patterns.
- Governance Participation: Polkadot (DOT) and Kusama (KSM) token holders influence Statemint's operations, such as fee adjustments and protocol upgrades, through on-chain governance mechanisms.

Applicable Fees:

- Transaction Fees: Users pay transaction fees in the native tokens of the Relay Chain, DOT for Polkadot or KSM for Kusama. These fees are distributed to Relay Chain validators to support the network's maintenance.
- Asset Creation and Transfer Fees: Fees apply for creating new assets and transferring them on the Statemint chain. These fees help prevent spam and ensure efficient use of network resources.
- Governance-Defined Fee Adjustments: The Statemint parachain's fees can be adjusted through governance proposals, enabling the community to adapt costs to network conditions.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

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hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

To determine the energy consumption of a token, the energy consumption of the network(s) is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

S.15 Key energy sources and methodologies

To determine the proportion of renewable energy usage, the locations of the nodes are to be determined using public information sites, open-source crawlers and crawlers developed in-house. If no information is available on the geographic distribution of the nodes, reference networks are used which are comparable in terms of their incentivization structure and consensus mechanism. This geo-information is merged with public information from Our World in Data, see citation. The intensity is calculated as the marginal energy cost wrt. one more transaction.

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S.16 Key GHG sources and methodologies

To determine the GHG Emissions, the locations of the nodes are to be determined using public information sites, open-source crawlers and crawlers developed in-house. If no information is available on the geographic distribution of the nodes, reference networks are used which are comparable in terms of their incentivization structure and consensus mechanism. This geo-information is merged with public information from Our World in Data, see citation. The intensity is calculated as the marginal emission wrt. one more transaction.

Ember (2025); Energy Institute - Statistical Review of World Energy (2024) - with major processing by Our World in Data. "Carbon intensity of electricity generation - Ember and Energy Institute" [dataset]. Ember, "Yearly Electricity Data Europe"; Ember, "Yearly Electricity Data"; Energy Institute, "Statistical Review of World Energy" [original data]. Retrieved from <https://ourworldindata.org/grapher/carbon-intensity-electricity> Licenced under CC BY 4.0.



Quantitative information

Quantitative sustainability indicators for Citrea

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Citrea	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	627154.56113	kWh/a
S.10 Renewable energy consumption	34.4781696675	%
S.11 Energy intensity	0.00000	kWh
S.12 Scope 1 DLT GHG emissions – Controlled	0.00000	tCO ₂ e
S.13 Scope 2 DLT GHG emissions – Purchased	258.38488	tCO ₂ e
S.14 GHG intensity	0.00000	kgCO ₂ e

Qualitative information

S.4 Consensus Mechanism

Citrea is present on the following networks: Base, Citrea.

Base does not operate its own consensus mechanism or decentralised validator set comparable to a Layer-1 blockchain. As an optimistic rollup Layer-2 network, Base relies on Ethereum's Proof-of-Stake consensus for the finality and settlement of data and state commitments posted to Ethereum Layer 1. Transaction ordering on Base is performed by a sequencer, currently operated by Coinbase. This sequencing function provides transaction ordering and execution on the Layer-2 network but does not constitute a decentralised consensus mechanism. The validity of Layer-2 state transitions is supported by an optimistic fault-proof mechanism, under which incorrect state commitments may be challenged during the applicable dispute period. Accordingly, Base's security model depends on Ethereum Layer 1 for settlement and finality, while Layer-2 transaction ordering remains dependent on the sequencer.

Citrea operates as a zero-knowledge rollup that extends Bitcoin's functionality while using Bitcoin as its settlement and data availability layer. Transactions are executed within the Citrea environment and aggregated into cryptographic proofs, which are then submitted for verification and settlement.

S.5 Incentive Mechanisms and Applicable Fees

Citrea is present on the following networks: Base, Citrea.

Base does not have a native protocol token and does not operate a staking, validator reward or token issuance mechanism. Transaction fees on Base are paid in ETH. The economic incentives within the network are primarily related to transaction processing and network security. Transactions are executed on Base and periodically submitted to Ethereum Layer 1 in batches. As the cost of a Layer-1 submission is shared among multiple Layer-2 transactions, the average transaction cost per transaction may be lower than executing the same transactions directly on Ethereum Layer 1. The integrity of withdrawals from Base is supported by a fault-proof mechanism. Withdrawals are subject to a dispute period during which participants may challenge incorrect state commitments. The dispute process incorporates economic incentives intended to encourage honest behaviour and discourage invalid claims.

Users pay transaction fees for executing operations within the Citrea rollup. These fees compensate the infrastructure responsible for transaction processing, proof generation, and state updates. The economic model is designed to support rollup operations while leveraging the underlying settlement guarantees provided by Bitcoin.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) base, citrea is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

S.15 Key energy sources and methodologies

To determine the proportion of renewable energy usage, the locations of the nodes are to be determined using public information sites, open-source crawlers and crawlers developed in-house. If no information is available on the geographic distribution of the nodes, reference networks are used which are comparable in terms of their incentivization structure and consensus mechanism. This geo-information is merged with public information from Our World in Data, see citation. The intensity is calculated as the marginal energy cost wrt. one more transaction.

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Institute, "Statistical Review of World Energy" [original data]. Retrieved from <https://ourworldindata.org/grapher/share-electricity-renewables>.

S.16 Key GHG sources and methodologies

To determine the GHG Emissions, the locations of the nodes are to be determined using public information sites, open-source crawlers and crawlers developed in-house. If no information is available on the geographic distribution of the nodes, reference networks are used which are comparable in terms of their incentivization structure and consensus mechanism. This geo-information is merged with public information from Our World in Data, see citation. The intensity is calculated as the marginal emission wrt. one more transaction.

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Flow

FLOW | 6T49BCSXZ

Quantitative information

Quantitative sustainability indicators for Flow

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Flow	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	526695.00000	kWh/a
S.10 Renewable energy consumption	37.9124101186	%
S.11 Energy intensity	0.00029	kWh
S.12 Scope 1 DLT GHG emissions – Controlled	0.00000	tCO ₂ e
S.13 Scope 2 DLT GHG emissions – Purchased	175.29098	tCO ₂ e
S.14 GHG intensity	0.00010	kgCO ₂ e

Qualitative information

S.4 Consensus Mechanism

Flow employs a Proof of Stake (PoS) model with a multi-role node architecture and the HotStuff Byzantine Fault Tolerant (BFT) protocol to achieve high throughput, scalability, and fast finality.

Core Components of Flow's Consensus:

1. Proof of Stake with Multi-Role Architecture:

Specialized Node Roles: Flow's PoS model features a multi-node architecture where node roles are divided among different types of specialized nodes, each responsible for specific tasks. This separation enhances scalability by allowing nodes to focus on particular operations, leading to efficient transaction processing and high throughput.

2. HotStuff Consensus Algorithm:

- Optimized for High Throughput and Fast Finality: Flow utilizes an optimized version of the HotStuff consensus protocol, which is designed to support high-speed, low-latency transactions essential for Flow's performance-oriented blockchain.
- BFT Compliance: HotStuff is a BFT protocol, allowing it to tolerate up to one-third of nodes acting maliciously without compromising the network's security. This resilience ensures the network remains secure and functional, even with potential faults or dishonest nodes.

3. Leader-Based Block Proposal:

- Leader and Replica Nodes: HotStuff operates with a leader-based approach where a designated leader node proposes new blocks, and other nodes (replicas) validate these blocks. This method simplifies the consensus process, reducing complexity and improving efficiency.
- Leader Rotation Mechanism: To prevent centralization and enhance fault tolerance, HotStuff incorporates a leader rotation system, replacing the leader if it becomes unresponsive or acts maliciously. This rotation ensures continuous network reliability and minimizes downtime.

S.5 Incentive Mechanisms and Applicable Fees

Flow's incentive model rewards validator nodes, supports ecosystem growth, and maintains affordable fees for developers and users.

Incentive Mechanisms:

1. Staking Rewards for Specialized Nodes:

Role-Based Rewards: Validators earn Flow tokens according to their specific roles and contributions within the multi-node architecture, aligning rewards with each node's responsibilities to encourage balanced and effective network participation.

2. Transaction Fees:

Stable and Consumer-Friendly Fees: Flow's fee structure is designed for predictability, keeping transaction costs stable for both developers and users. Fees are based on transaction complexity and provide an ongoing income stream for validators.

3. Misbehavior Penalties:

Penalties for Downtime or Malicious Behavior: To maintain network stability, Flow imposes penalties on validators for misbehavior or downtime. This incentivizes high-quality validator participation and ensures consistent performance.

4. Ecosystem and Developer Support:

Dedicated Portion of Fees and Rewards: A portion of Flow's transaction fees and rewards is allocated to developer initiatives, ecosystem growth, and community engagement. This investment fosters innovation, supports long-term network health, and aligns incentives for ecosystem development.

S.9 Energy consumption sources and methodologies

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The

information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

S.15 Key energy sources and methodologies

To determine the proportion of renewable energy usage, the locations of the nodes are to be determined using public information sites, open-source crawlers and crawlers developed in-house. If no information is available on the geographic distribution of the nodes, reference networks are used which are comparable in terms of their incentivization structure and consensus mechanism. This geo-information is merged with public information from Our World in Data, see citation. The intensity is calculated as the marginal energy cost wrt. one more transaction.

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S.16 Key GHG sources and methodologies

To determine the GHG Emissions, the locations of the nodes are to be determined using public information sites, open-source crawlers and crawlers developed in-house. If no information is available on the geographic distribution of the nodes, reference networks are used which are comparable in terms of their incentivization structure and consensus mechanism. This geo-information is merged with public information from Our World in Data, see citation. The intensity is calculated as the marginal emission wrt. one more transaction.

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Quantitative information

Quantitative sustainability indicators for Kusama

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Kusama	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	474616.80000	kWh/a

Qualitative information

S.4 Consensus Mechanism

Kusama is a scalable, interoperable blockchain platform built using a Nominated Proof of Stake (NPoS) consensus mechanism. It is a canary network for Polkadot, allowing developers to experiment and deploy new features before they are added to Polkadot. Kusama's NPoS mechanism ensures high security, decentralized control, and rapid block finality.

Key Features of Kusama's Consensus Mechanism:

1. Nominated Proof of Stake (NPoS):

- Validators and Nominators: Kusama's consensus mechanism relies on validators and nominators. Validators are responsible for producing blocks and validating transactions, while nominators select trustworthy validators by staking KSM (Kusama's native token).
- Staking and Security: Validators must stake KSM tokens to participate in consensus, and nominators back validators with their KSM tokens. The more KSM tokens staked by both validators and nominators, the more secure the network is.
- Validator Rotation: Validators are selected based on the amount of KSM staked, with a fixed number of validators chosen to participate in consensus at any given time. The network periodically rotates validators to ensure fairness and prevent centralization.
- Finality and Security: NPoS ensures secure and fast finality. Once a block is validated, it becomes part of the immutable blockchain, meaning it cannot be reverted or reorganized.

2. Governance:

- On-Chain Governance: Kusama features a robust on-chain governance system that allows KSM holders to vote on important protocol decisions, including changes to the consensus mechanism, network upgrades, and other governance parameters.
- Democratic Decision-Making: All token holders have voting power proportional to the amount of KSM they hold and are willing to lock up. This ensures decentralized control over network upgrades and parameters.
- Governance Proposals: Kusama's governance is open and transparent, with proposals submitted by the community, allowing participants to shape the direction of the network.

3. Parachain Auctions:

- Shared Security: Kusama supports parachains, which are individual blockchains that benefit from Kusama's shared security model. Parachain slots are won through auctions where participants bid with KSM tokens, ensuring that only the most committed participants secure a parachain slot.
- Scalability: This multi-chain model enables Kusama to scale horizontally, allowing for the connection of numerous independent blockchains, which can interoperate within the Kusama ecosystem.

4. Fast Finality and High Throughput:

- Speed: Kusama's consensus mechanism allows for rapid block finality and high throughput, supporting thousands of transactions per second.
- Low Latency: The system's low-latency design ensures quick confirmation times, enabling Kusama to handle high transaction volumes efficiently.

S.5 Incentive Mechanisms and Applicable Fees

Kusama's incentive mechanisms ensure active participation in securing and maintaining the network while its fee structure supports efficient operation and scalability of the ecosystem.

Incentive Mechanism:

1. Validator Rewards:

- Block Rewards: Validators in Kusama earn rewards for successfully producing blocks and validating transactions. These rewards are given in KSM tokens and are distributed proportionally to the amount of KSM staked by validators and nominators.
- Transaction Fees: In addition to block rewards, validators also earn transaction fees for validating and including transactions in blocks. These fees are paid by users who want their transactions included in the next block.

2. Nominator Rewards:

- Staking Rewards: Nominators, who delegate their KSM tokens to trusted validators, share in the rewards earned by the validators they support. Nominators receive a proportion of both the block rewards and transaction fees, incentivizing them to choose high-performing validators.
- Reward Distribution: The rewards earned by nominators are distributed based on the amount of KSM they have staked with a validator. More KSM staked means higher rewards for the nominator.

3. Parachain Auction Participation:

- Slot Auctions: Kusama's parachain slots are won through an auction process, where participants bid using KSM tokens. This incentivizes KSM holders to lock up their tokens in parachain auctions to secure valuable parachain slots for their projects.
- Crowdloan Incentives: Projects bidding for parachain slots can incentivize users to participate in crowdloans, where users lend their KSM tokens to the project in exchange for potential rewards once the project secures a parachain slot.

4. Governance Participation:

Voting Rewards: KSM token holders who participate in governance decisions, such as voting on proposals and upgrades, are incentivized with the ability to influence the future of the network. Although there are no direct financial rewards for voting, active participation in governance ensures the sustainability and growth of the ecosystem.

Applicable Fees:

1. Transaction Fees:

- Fee Structure: Kusama users pay transaction fees for processing their transactions on the network. These fees are generally low and are determined by the transaction's size and network demand. Transaction fees are paid in KSM tokens and are used to compensate validators for their work.
- Dynamic Fee Adjustment: The fee rate can adjust based on the current network congestion. During periods of high demand, transaction fees can increase, prioritizing faster processing of transactions with higher fees.

2. Parachain Slot Auction Fees:

Bidding Fees: Projects wishing to secure a parachain slot must participate in an auction and bid KSM tokens to win the slot. The auction fees paid to win a parachain slot are burned or redistributed within the Kusama ecosystem to support network growth and maintenance.

3. Storage Fees:

Data Storage: Kusama charges fees for storing data on the network, including smart contracts and parachain data. These fees are required to ensure efficient data usage and prevent unnecessary resource consumption. Fees for storage are also paid in KSM tokens.

4. Governance Fees:

Proposal and Voting Costs: Participants in governance, such as those submitting proposals or voting on network upgrades, may be required to pay minimal fees, ensuring the governance process is secure and spam-free. These costs help prevent abuse of the voting system and are intended to maintain an orderly governance environment.

S.9 Energy consumption sources and methodologies

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for USDC

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	USDC	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	457916.73520	kWh/a

Qualitative information

S.4 Consensus Mechanism

USDC is present on the following networks: Algorand, Aptos Coin, Arbitrum, Avalanche, Base, Celo, Ethereum, Flow, Hedera Hbar, Hyperliquid, Injective, Linea, Near Protocol, Optimism, Plume, Polygon, Ripple, Sei, Solana, Sonic, Starknet, Statemint, Stellar, Sui, Tron, Xdc Network, Zksync.

The Algorand blockchain utilizes a consensus mechanism termed Pure Proof-of-Stake (PPoS). Consensus, in this context, describes the method by which blocks are selected and appended to the blockchain. Algorand employs a verifiable random function (VRF) to select leaders who propose blocks for each round.

Upon block proposal, a pseudorandomly selected committee of voters is chosen to evaluate the proposal. If a supermajority of these votes are from honest participants, the block is certified. What makes this algorithm a Pure Proof of Stake is that users are chosen for committees based on the number of algos in their accounts. This system leverages random committee selection to maintain high performance and inclusivity within the network.

The consensus process involves three stages:

1. Propose: A leader proposes a new block.
2. Soft Vote: A committee of voters assesses the proposed block.
3. Certify Vote: Another committee certifies the block if it meets the required honesty threshold.

Aptos utilizes a Proof-of-Stake approach combined with a BFT consensus protocol to ensure high throughput, low latency, and secure transaction processing.

Core Components:

- Parallel Execution: Transactions are processed concurrently using Block-STM, a parallel execution engine, enabling high performance and scalability.
- Leader-Based BFT: A leader is selected among validators to propose blocks, while others validate and finalize transactions.
- Dynamic Validator Rotation: Validators are rotated regularly, enhancing decentralization and preventing collusion.
- Instant Finality: Transactions achieve finality once validated, ensuring that they are irreversible.

Arbitrum is an optimistic rollup that processes transactions on a Layer 2 network and relies on Ethereum for data availability and settlement. A sequencer orders incoming transactions, executes them and publishes compressed transaction batches to Ethereum. Arbitrum nodes can independently reconstruct and verify the resulting Layer 2 state using the transaction data published on the parent chain. Validators submit assertions representing the state of the network. Under the BoLD dispute protocol, conflicting or incorrect assertions may be challenged and resolved through an interactive fraud-proof process on Ethereum. Once an assertion has been confirmed and the applicable challenge process has been completed, the corresponding Layer 2 state is accepted for settlement purposes.

The Avalanche C-Chain uses the Snowman++ consensus mechanism, which is Avalanche's consensus model for linear blockchains and is implemented through the ProposerVM wrapper. Under this model, validators repeatedly query a small random subset of other validators and converge on a preferred block once the required confidence thresholds are met. Only Primary Network validators are entitled to validate the C-Chain. To participate as a validator on Avalanche mainnet, a node must stake a minimum number of token. Token holders may also participate indirectly by delegating an existing validator. Validator identity and admission to staking require the relevant staking credentials, including BLS proofs of possession under the current staking framework. For block production, Snowman++ uses stake-weighted proposer windows. Through the ProposerVM, block-building opportunities are assigned to proposers in 5-second windows, after which block production may fall back more broadly to validators if necessary. This mechanism is intended to regulate block production while preserving network liveness. Consensus voting itself remains based on repeated sub-sampled polling rather than fixed validator committees. Avalanche documentation describes the finality model as sub-second and treated by the protocol as final and irreversible once accepted, while noting that safety is probabilistic in the formal sense because the probability of conflicting acceptance can be reduced to an arbitrarily low level through the protocol parameters. The protocol does not rely on slashing of staked principal. Instead, validator reward eligibility depends on compliance with protocol conditions, including uptime requirements.

Base does not operate its own consensus mechanism or decentralised validator set comparable to a Layer-1 blockchain. As an optimistic rollup Layer-2 network, Base relies on Ethereum's Proof-of-Stake consensus for the finality and settlement of data and state commitments posted to Ethereum Layer 1. Transaction ordering on Base is performed by a sequencer, currently operated by Coinbase. This sequencing function provides transaction ordering and execution on the Layer-2 network but does not constitute a decentralised consensus mechanism. The validity of Layer-2 state transitions is supported by an optimistic fault-proof mechanism, under which incorrect state commitments may be challenged during the applicable dispute period. Accordingly, Base's security model depends on Ethereum Layer 1 for settlement and finality, while Layer-2 transaction ordering remains dependent on the sequencer.

Celo uses a Proof of Stake (PoS) consensus model, which supports a decentralized, community-driven approach to governance and network security.

Core Components of Celo's Consensus:

1. Proof of Stake (PoS):

Validator Role: Validators are responsible for creating new blocks, validating transactions, and maintaining the security and integrity of the network. Validators are selected based on the amount of CELO tokens they hold and stake, incentivizing honest participation and network reliability.

2. Decentralized Governance:

Community Voting: Governance on Celo is decentralized, allowing CELO token holders to vote on proposals and changes to the network. This community-driven approach ensures that token holders have a say in the network's development and strategic direction.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

Flow employs a Proof of Stake (PoS) model with a multi-role node architecture and the HotStuff Byzantine Fault Tolerant (BFT) protocol to achieve high throughput, scalability, and fast finality.

Core Components of Flow's Consensus:

1. Proof of Stake with Multi-Role Architecture:

Specialized Node Roles: Flow's PoS model features a multi-node architecture where node roles are divided among different types of specialized nodes, each responsible for specific tasks. This separation enhances scalability by allowing nodes to focus on particular operations, leading to efficient transaction processing and high throughput.

2. HotStuff Consensus Algorithm:

- **Optimized for High Throughput and Fast Finality:** Flow utilizes an optimized version of the HotStuff consensus protocol, which is designed to support high-speed, low-latency transactions essential for Flow's performance-oriented blockchain.
- **BFT Compliance:** HotStuff is a BFT protocol, allowing it to tolerate up to one-third of nodes acting maliciously without compromising the network's security. This resilience ensures the network remains secure and functional, even with potential faults or dishonest nodes.

3. Leader-Based Block Proposal:

- **Leader and Replica Nodes:** HotStuff operates with a leader-based approach where a designated leader node proposes new blocks, and other nodes (replicas) validate these blocks. This method simplifies the consensus process, reducing complexity and improving efficiency.
- **Leader Rotation Mechanism:** To prevent centralization and enhance fault tolerance, HotStuff incorporates a leader rotation system, replacing the leader if it becomes unresponsive or acts maliciously. This rotation ensures continuous network reliability and minimizes downtime.

Hedera Hashgraph operates on a unique Hashgraph consensus algorithm, a directed acyclic graph (DAG) system that diverges from traditional blockchain technology. It uses Asynchronous Byzantine Fault Tolerance (aBFT) to secure the network.

Core Components:

1. Hashgraph Consensus and aBFT:

Hedera Hashgraph's consensus mechanism achieves aBFT, which allows the network to tolerate malicious nodes without compromising security, ensuring high levels of fault tolerance and stability.

2. Gossip about Gossip Protocol:

The network employs a "Gossip about Gossip" protocol, where nodes share transaction information along with details of previous gossip events. This process allows each node to rapidly learn the entire network state, enhancing communication efficiency and minimizing latency.

3. Virtual Voting:

Hedera does not rely on traditional miners or stakers. Instead, it uses virtual voting, where nodes reach consensus by analyzing the gossip history and simulating votes based on the order and frequency of transactions received. Virtual voting eliminates the need for actual voting messages, reducing network congestion and speeding up consensus.

4. Deterministic Finality:

Once consensus is reached, transactions achieve deterministic finality instantly, making them irreversible and confirmed within seconds. This attribute is ideal for applications needing quick and irreversible transaction confirmations.

5. Staking for Network Security:

Hedera incorporates staking to bolster network security. HBAR holders can stake their tokens to support validator nodes, contributing to the network's resilience and encouraging long-term engagement in consensus operations.

Hyperliquid is a decentralized perpetual exchange (DEX) built on its proprietary Layer 1 blockchain, Hyperliquid L1. At the core of its architecture is the HyperBFT consensus mechanism, inspired by the Hotstuff protocol, designed to meet the demands of high-frequency trading while maintaining security and consistency across the ecosystem.

Injective operates on a Tendermint-based Proof of Stake (PoS) consensus model, ensuring high throughput and immediate transaction finality.

Core Components:

- Tendermint-based Proof of Stake (PoS):

Ensures instant transaction finality and supports efficient block production for high-speed transactions.

- Validator Selection:

Validators are chosen based on the amount of INJ tokens staked, considering both self-staked and delegated tokens, to maintain a decentralized network.

- Delegation:

INJ holders can delegate their tokens to validators, earning a share of staking rewards while participating in network governance.

- Instant Finality:

The Tendermint consensus mechanism provides immediate finality, ensuring transactions cannot be reversed once validated.

The Linea Network uses a Zero-Knowledge Rollup (ZK-Rollup) architecture with a zkEVM for Ethereum compatibility, and its consensus is derived from Ethereum's own proof-of-stake security. While the Network has components like a sequencer for ordering transactions and a coordinator for network management, its consensus mechanism is fundamentally linked to the proof and verification process of zero-knowledge proofs and the security of the Ethereum mainnet. Instead of a typical decentralized consensus on a separate blockchain, the Network inherits its security and state finality from Ethereum.

The NEAR Protocol uses a unique consensus mechanism combining Proof of Stake (PoS) and a novel approach called Doomslug, which enables high efficiency, fast transaction processing, and secure finality in its operations.

Core Concepts:

1. Doomslug and Proof of Stake:

- NEAR's consensus mechanism primarily revolves around PoS, where validators stake NEAR tokens to participate in securing the network. However, NEAR's implementation is enhanced with the Doomslug protocol.
- Doomslug allows the network to achieve fast block finality by requiring blocks to be confirmed in two stages. Validators propose blocks in the first step, and finalization occurs when two-thirds of validators approve the block, ensuring rapid transaction confirmation.

2. Sharding with Nightshade:

- NEAR uses a dynamic sharding technique called Nightshade. This method splits the network into multiple shards, enabling parallel processing of transactions across the network, thus significantly increasing throughput. Each shard processes a portion of transactions, and the outcomes are merged into a single "snapshot" block.
- This sharding approach ensures scalability, allowing the network to grow and handle increasing demand efficiently.

Consensus Process:

1. Validator Selection:

- Validators are selected to propose and validate blocks based on the amount of NEAR tokens staked. This selection process is designed to ensure that only validators with significant stakes and community trust participate in securing the network.

2. Transaction Finality:

- NEAR achieves transaction finality through its PoS-based system, where validators vote on blocks. Once two-thirds of validators approve a block, it reaches finality under Doomslug, meaning that no forks can alter the confirmed state.

3. Epochs and Rotation:

- Validators are rotated in epochs to ensure fairness and decentralization. Epochs are intervals in which validators are reshuffled, and new block proposers are selected, ensuring a balance between performance and decentralization.

Since Optimism is based on Ethereum, it ultimately inherits its security via the Ethereum blockchain and the proof-of-stake consensus. Within the rollup system, Optimism relies on a "fault proof" procedure. By default, transactions are assumed to be correct ("optimistic"). Only in the event of suspected faults is a fault proof initiated, in which incorrect transactions can be challenged by challengers. This model allows for high efficiency while ensuring correctness.

Plume is described as relying on an architecture aligned with optimistic rollup technology within the Arbitrum Orbit framework. Under this design, transaction ordering is typically performed by a sequencer, while settlement and finality are achieved via anchoring to Ethereum. Economic

incentives and protocol rules are generally designed to encourage timely submission of fraud proofs (where applicable) within predefined challenge windows. The precise security guarantees and finality characteristics depend on the rollup configuration, the sequencer setup, and Ethereum's underlying security assumptions.

Polygon PoS is an EVM-compatible sidechain that operates with a Proof-of-Stake consensus mechanism and periodically submits checkpoints to the Ethereum mainnet. The network maintains its own validator set and processes transactions independently from Ethereum, while using Ethereum smart contracts for staking-related functions and checkpoint verification. Polygon PoS therefore uses Ethereum as a staking and checkpointing layer, but does not rely on Ethereum for full transaction execution or transaction data availability. The Polygon-side architecture consists of two primary node layers. The Bor layer is responsible for transaction execution and block production. The Heimdall layer is responsible for validator coordination, staking-related monitoring, consensus, and checkpoint finalisation. Heimdall is based on Cosmos SDK and CometBFT and aggregates blocks produced by Bor into periodic Merkle-root checkpoints that are submitted to smart contracts on the Ethereum mainnet. Validators participate in the network by staking POL tokens. Token holders may delegate POL tokens to validators, contributing to the validator's effective stake and participating indirectly in network validation. Following the Rio upgrade, Polygon PoS uses a Validator-Elected Block Producer model. Under this model, validators elect the block producer or block producers for a span, rather than relying on the previous stake-weighted selection model for multiple block producers over shorter intervals. Block production and transaction execution are performed on the Bor layer, while Heimdall validators coordinate consensus and checkpoint finalisation. At regular intervals, Heimdall validators aggregate blocks into a Merkle root and submit the resulting checkpoint to Ethereum smart contracts. These checkpoints provide an additional verification layer and support cross-chain verification, including in the context of asset transfers between Polygon PoS and Ethereum. This design enables higher transaction throughput and lower transaction costs than the Ethereum mainnet, while maintaining a technical connection to Ethereum through staking contracts and periodic checkpointing. Polygon PoS should therefore be understood as an independent sidechain or commit-chain architecture, rather than a rollup that inherits full execution and data availability security from Ethereum.

The Ripple blockchain, specifically the XRP Ledger (XRPL), uses a consensus mechanism known as the Ripple Protocol Consensus Algorithm (RPCA). It differs from Proof of Work (PoW) and Proof of Stake (PoS) as it doesn't rely on mining or staking but instead leverages trusted validators in a Federated Byzantine Agreement (FBA) model.

Core Concepts:

1. Validators and Unique Node Lists (UNL): Validators are trusted nodes in the network that validate transactions and propose new ledger updates. Each node maintains a list of trusted validators known as its Unique Node List (UNL). Consensus is achieved when 80% of the validators in a node's UNL agree on the validity of a transaction or block. This ensures high levels of security and decentralization.
2. Transaction Ordering and Validation: Transactions are broadcast to validators, and once 80% of the validators agree, the transaction is considered confirmed. Each ledger in the XRPL contains transaction data, and validators ensure the validity and proper ordering of these transactions.

Consensus Process:

1. Proposal Phase: Validators propose new transactions to be added to the ledger.
2. Validation Phase: Validators vote on proposed transactions by comparing them to their UNL. Consensus is achieved when 80% of validators agree.

3. Finalization: Once consensus is reached, the transactions are written into the new ledger, making them irreversible and final.

Sei leverages its Twin-Turbo consensus mechanism, integrating advanced transaction processing techniques with the reliability of Tendermint Core, to achieve high performance and security.

Core Components:

- Twin-Turbo Consensus:
 - Optimistic Block Processing: Validators process transactions optimistically, assuming their validity, reducing latency and increasing throughput.
 - Intelligent Block Propagation: Compressed block proposals containing transaction hashes enable validators to reconstruct blocks locally, expediting consensus.
 - Single Slot Finality: Ensures immediate block finality upon addition, eliminating the need for confirmations and minimizing the risk of chain reorganizations.
- Tendermint Core Integration:
 - Incorporates Byzantine Fault Tolerance (BFT) to maintain security and resilience, safeguarding the network against malicious actors.

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):
 - Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
 - Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.
2. Proof of Stake (PoS):
 - Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
 - Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.
2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.
3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

Sonic utilizes a Proof-of-Stake (PoS) consensus mechanism integrated with a Directed Acyclic Graph (DAG) architecture to enhance scalability and efficiency. Validators are required to stake the network's native \$S tokens, with a minimum of 500,000 \$S tokens needed to operate a validator node. This substantial staking requirement ensures that validators have a significant investment in the network's integrity.

Starknet employs zero-knowledge rollups (ZK-Rollups) for transaction aggregation and scalability, ensuring efficiency and security through succinct proof submissions to Ethereum.

Core Components:

- Zero-Knowledge Rollups (ZK-Rollups):

Aggregates multiple off-chain transactions into a single proof, which is submitted to Ethereum's mainnet, reducing computational load and gas costs.

- Sequencer and Prover Roles:

- Sequencers: Order and batch transactions for efficient processing.
- Provers: Generate validity proofs ensuring the correctness of processed batches.

- Instant Finality:

Transactions are final once a proof is verified and accepted on Ethereum, minimizing the risk of chain reorganizations and enhancing reliability.

Statemint is a common-good parachain on the Polkadot and Kusama networks, designed to handle asset management and issuance efficiently while leveraging Polkadot's shared security model.

Core Components:

- Relay Chain Integration: StateMint inherits its consensus mechanism from the Polkadot Relay Chain, which operates on a Nominated Proof of Stake (NPoS) model. This model ensures robust security and decentralization by relying on validators and nominators.
- Shared Security: As a parachain, StateMint utilizes the Polkadot Relay Chain's validators for block validation, ensuring high security and interoperability without requiring independent validators.
- Collator Nodes: StateMint employs collator nodes to aggregate transactions into blocks and submit them to the Relay Chain validators for finalization. Collators do not participate in consensus directly but play a key role in transaction processing.
- Immediate Finality: The underlying Polkadot consensus mechanism ensures instant finality using the GRANDPA (GHOST-based Recursive Ancestor Deriving Prefix Agreement) protocol, which provides secure and efficient transaction confirmation.

Consensus is reached through the Stellar Consensus Protocol (SCP), which is based on federated Byzantine agreement. This mechanism allows fast finality without mining or staking, but it depends on validators choosing other validators which they trust to reach agreement, called a quorum set. As a result, validator diversity and governance choices play a critical role in security, and concentration of influence among large operators may increase systemic risks.

The Sui blockchain utilizes a Byzantine Fault Tolerant (BFT) consensus mechanism optimized for high throughput and low latency.

Core Components:

1. Mysten Consensus Protocol:

- The Sui consensus is based on Mysten Labs' Byzantine Fault Tolerance (BFT) protocol, which builds on principles of Practical Byzantine Fault Tolerance (pBFT) but introduces key optimizations for performance.
- Leaderless Design: Unlike traditional BFT models, Sui does not rely on a single leader to propose blocks. Validators can propose blocks simultaneously, increasing efficiency and reducing the risks associated with leader failure or attacks.
- Parallel Processing: Transactions can be processed in parallel, maximizing network throughput by utilizing multiple cores and threads. This allows for faster confirmation of transactions and high scalability.

2. Transaction Validation:

Validators are responsible for receiving transaction requests from clients and processing them. Each transaction includes digital signatures and must meet the network's rules to be considered valid. Validators can propose transactions simultaneously, unlike many other networks that require a sequential, leader-driven process.

3. Optimistic Execution:

Optimistic Consensus: Sui allows validators to process certain non-contentious, independent transactions without waiting for full consensus. This is known as optimistic execution and helps reduce transaction latency for many use cases, allowing for fast finality in most cases.

4. Finality and Latency:

The system only requires three rounds of communication between validators to finalize a transaction. This results in low-latency consensus and rapid transaction confirmation times, achieving scalability while maintaining security.

5. Fault Tolerance:

The system can tolerate up to one-third of validators being faulty or malicious without compromising the integrity of the consensus process.

The Tron blockchain operates on a Delegated Proof of Stake (DPoS) consensus mechanism, designed to improve scalability, transaction speed, and energy efficiency.

Core Components:

1. Delegated Proof of Stake (DPoS): Tron uses DPoS, where token holders vote for a group of delegates known as Super Representatives (SRs) who are responsible for validating transactions and producing new blocks on the network. Token holders can vote for SRs based on their stake in the Tron network, and the top 27 SRs (or more, depending on the protocol version) are selected to participate in the block production process. SRs take turns producing blocks, which are added to the blockchain. This is done on a rotational basis to ensure decentralization and prevent control by a small group of validators.
2. Block Production: The Super Representatives generate new blocks and confirm transactions. The Tron blockchain achieves block finality quickly, with block production occurring every 3 seconds, making it highly efficient and capable of processing thousands of transactions per second.
3. Voting and Governance: Tron's DPoS system also allows token holders to vote on important network decisions, such as protocol upgrades and changes to the system's parameters. Voting power is proportional to the amount of TRX (Tron's native token) that a user holds and chooses to stake. This provides a governance system where the community can actively participate in decision-making.
4. Super Representatives: The Super Representatives play a crucial role in maintaining the security and stability of the Tron blockchain. They are responsible for validating transactions, proposing new blocks, and ensuring the overall functionality of the network. Super Representatives are incentivized with block rewards (newly minted TRX tokens) and transaction fees for their work.

XinFin Network operates on a modified Delegated Proof of Stake (XDPoS) model, XDPoS 2.0, which ensures scalability, security, and efficiency suitable for enterprise applications.

Core Components:

1. XDPoS 2.0 (Delegated Proof of Stake):
 Masternode System: Validators, known as masternodes, are required to stake XDC tokens to participate in transaction validation and block production. Validators are selected based on both stake size and community votes, ensuring only reliable nodes secure the network.
2. Double Validation Feature:
 - Enhanced Security: Each transaction is validated by two independent validators before it's finalized, reducing the risk of double-spending or malicious behavior and increasing network reliability.
 - Randomized Validator Rotation: Validators are selected in a rotating and randomized manner, preventing any single validator from consistently producing blocks, which enhances decentralization and security.

zkSync operates as a Layer 2 scaling solution for Ethereum, leveraging zero-knowledge rollups (ZK-Rollups) to enable fast, cost-effective, and secure transactions. This consensus mechanism allows zkSync to offload transaction computation from Ethereum's Layer 1, ensuring scalability while maintaining Ethereum's base-layer security.

Core Components:

- Zero-Knowledge Rollups (ZK-Rollups):
 zkSync aggregates multiple transactions off-chain and processes them in batches. A cryptographic proof, called a validity proof, is generated for each batch and submitted to the Ethereum

mainnet. This ensures that all transactions are valid and compliant with Ethereum's rules without processing them individually on Layer 1.

- Validity Proofs:

zkSync uses zk-SNARKs (Succinct Non-Interactive Arguments of Knowledge) for its validity proofs. These proofs provide mathematical guarantees that transactions within a batch are valid, eliminating the need for Ethereum nodes to re-execute off-chain transactions.

- Sequencers:

Transactions on zkSync are ordered and processed by sequencers, which bundle transactions into batches. Sequencers maintain network efficiency and provide fast confirmations.

- Fraud Resistance:

Unlike Optimistic Rollups, zkSync relies on validity proofs rather than fraud proofs, meaning that transactions are final and secure as soon as the validity proof is accepted by Ethereum.

- Data Availability:

All transaction data is stored on-chain, ensuring that the network remains decentralized and users can reconstruct the state of zkSync at any time.

S.5 Incentive Mechanisms and Applicable Fees

USDC is present on the following networks: Algorand, Aptos Coin, Arbitrum, Avalanche, Base, Celo, Ethereum, Flow, Hedera Hbar, Hyperliquid, Injective, Linea, Near Protocol, Optimism, Plume, Polygon, Ripple, Sei, Solana, Sonic, Starknet, Statemint, Stellar, Sui, Tron, Xdc Network, Zksync.

Algorand's consensus mechanism, Pure Proof-of-Stake (PPoS), relies on the participation of token holders (stakers) to ensure the network's security and integrity:

1. Participation Rewards:

- Staking Rewards: Users who participate in the consensus protocol by staking their ALGO tokens earn rewards. These rewards are distributed periodically and are proportional to the amount of ALGO staked. This incentivizes users to hold and stake their tokens, contributing to network security and stability.
- Node Participation Rewards: Validators, also known as participation nodes, are responsible for proposing and voting on blocks. These nodes receive additional rewards for their active role in maintaining the network.

2. Transaction Fees:

- Flat Fee Model: Algorand employs a flat fee model for transactions, which ensures predictability and simplicity. The standard transaction fee on Algorand is very low (around 0.001 ALGO per transaction). These fees are paid by users to have their transactions processed and included in a block.
- Fee Redistribution: Collected transaction fees are redistributed to participants in the network. This includes stakers and validators, further incentivizing their participation and ensuring continuous network operation.

3. Economic Security:

Token Locking: To participate in the consensus mechanism, users must lock up their ALGO tokens. This economic stake acts as a security deposit that can be slashed (forfeited) if the participant acts maliciously. The potential loss of staked tokens discourages dishonest behavior and helps maintain network integrity.

Fees on the Algorand Blockchain

1. Transaction Fees:

Algorand uses a flat transaction fee model. The current standard fee is 0.001 ALGO per transaction. This fee is minimal compared to other blockchain networks, ensuring affordability and accessibility.

2. Smart Contract Execution Fees:

Fees for executing smart contracts on Algorand are also designed to be low. These fees are based on the computational resources required to execute the contract, ensuring that users are only charged for the actual resources they consume.

3. Asset Creation Fees:

Creating new assets (tokens) on the Algorand blockchain involves a small fee. This fee is necessary to prevent spam and ensure that only genuine assets are created and maintained on the network.

Incentive Mechanism:

- Validator Rewards: Validators earn rewards in APT tokens for validating transactions and producing blocks. Rewards are distributed proportionally based on the stake of validators and their delegators.
- Delegator Participation: APT token holders can delegate their tokens to validators, earning a share of the staking rewards without running their own nodes.
- Slashing Mechanism: Validators face penalties, such as losing staked tokens, for malicious actions or prolonged inactivity, ensuring accountability and network security.

Applicable Fees:

- Transaction Fees: Users pay transaction fees in APT tokens for sending transactions and interacting with smart contracts.
- Dynamic Fee Adjustment: Fees are dynamically adjusted based on network activity and resource usage, ensuring cost efficiency and preventing congestion.
- Fee Distribution: Transaction fees are distributed among validators and delegators, providing an additional incentive for network participation.

Transactions on Arbitrum are subject to fees paid in ETH. The total fee generally consists of a Layer 2 execution component, which covers the computational resources required to process the transaction, and a parent-chain data component, which reflects the cost of publishing compressed transaction data to Ethereum. The amount payable therefore depends on the computational complexity of the transaction, the volume and compressibility of its data and the prevailing cost of data publication on Ethereum. Participants that submit or challenge state assertions under the dispute protocol must provide economic bonds. These bonds are intended to discourage incorrect assertions and compensate successful participants in the dispute process. Withdrawals through the canonical bridge become executable after the relevant Layer 2 state has been confirmed and the applicable challenge period has elapsed.

The Avalanche C-Chain is secured economically through the native AVAX token. Validator incentives are based primarily on staking rewards, not on redistribution of C-Chain transaction fees. A fixed amount of 360 million AVAX was minted at genesis, while additional AVAX is minted over time as validator rewards, subject to Avalanche's capped token supply framework. Validator rewards are paid at the end of the staking period and are determined by factors such as the validator's stake and compliance with staking conditions. Unlike some proof-of-stake systems, the Avalanche Primary Network does not use slashing of bonded principal as an ordinary penalty mechanism. Instead, the main protocol-level economic consequence for underperformance is the loss of reward eligibility.

Where a validator fails to satisfy the applicable uptime requirement during its staking term, that validator does not receive the corresponding staking reward. Transaction fees apply on the C-Chain for transfers and smart-contract execution. The fee model follows EIP-1559 logic, meaning that transactions are priced through a dynamic base fee mechanism. In contrast to Ethereum's validator tip model, C-Chain transaction fees are burned rather than distributed to validators. This means that C-Chain fees function as a supply-reduction mechanism and are intended in part to offset inflation arising from the minting of validator rewards. In addition to ordinary transaction and smart-contract execution fees, Avalanche documentation also recognises protocol fees in connection with other network operations on other chains of the Primary Network, such as certain import or export operations and staking-related actions. However, for the C-Chain itself, the core applicable fee category is the gas fee for transaction inclusion and contract execution, and those fees are handled through the protocol burn mechanism rather than paid to validators or a treasury.

Base does not have a native protocol token and does not operate a staking, validator reward or token issuance mechanism. Transaction fees on Base are paid in ETH. The economic incentives within the network are primarily related to transaction processing and network security. Transactions are executed on Base and periodically submitted to Ethereum Layer 1 in batches. As the cost of a Layer-1 submission is shared among multiple Layer-2 transactions, the average transaction cost per transaction may be lower than executing the same transactions directly on Ethereum Layer 1. The integrity of withdrawals from Base is supported by a fault-proof mechanism. Withdrawals are subject to a dispute period during which participants may challenge incorrect state commitments. The dispute process incorporates economic incentives intended to encourage honest behaviour and discourage invalid claims.

Celo's incentive model rewards validators and prioritizes accessibility with minimal transaction fees, especially for cross-border payments, supporting a flexible and user-friendly ecosystem.

Incentive Mechanisms:

1. Validator Rewards:

Transaction Fees and Newly Minted Tokens: Validators earn rewards from transaction fees as well as newly minted CELO tokens. This dual-source reward system provides a continuous financial incentive for validators to act honestly and secure the network.

2. Transaction Flexibility and Gas Price:

- Gas Limit and Price Control: Each transaction specifies a maximum gas limit, ensuring that users are not excessively charged if a transaction fails. Users can also set a gas price to prioritize transactions, allowing faster processing for higher fees.
- Payment Flexibility with Multiple Currencies: Unlike many blockchains, Celo allows transaction fees to be paid in various ERC-20 tokens, providing flexibility for users. This approach improves accessibility, especially for individuals with limited access to traditional banking.

3. Minimal Fee Structure for Accessibility:

- Designed for Low-Cost Transactions: Celo's fee structure is intentionally minimal, particularly for cross-border payments, making it ideal for users who may not have traditional banking options. This focus on accessibility aligns with Celo's mission to bring blockchain technology to underserved communities.

Applicable Fees:

Transaction Fees: Fees are calculated based on gas usage, with a maximum gas limit set per transaction. This limit protects users from excessive costs, while the option to pay in multiple currencies enhances flexibility.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

Flow's incentive model rewards validator nodes, supports ecosystem growth, and maintains affordable fees for developers and users.

Incentive Mechanisms:

1. Staking Rewards for Specialized Nodes:

Role-Based Rewards: Validators earn Flow tokens according to their specific roles and contributions within the multi-node architecture, aligning rewards with each node's responsibilities to encourage balanced and effective network participation.

2. Transaction Fees:

Stable and Consumer-Friendly Fees: Flow's fee structure is designed for predictability, keeping transaction costs stable for both developers and users. Fees are based on transaction complexity and provide an ongoing income stream for validators.

3. Misbehavior Penalties:

Penalties for Downtime or Malicious Behavior: To maintain network stability, Flow imposes penalties on validators for misbehavior or downtime. This incentivizes high-quality validator participation and ensures consistent performance.

4. Ecosystem and Developer Support:

Dedicated Portion of Fees and Rewards: A portion of Flow's transaction fees and rewards is allocated to developer initiatives, ecosystem growth, and community engagement. This investment fosters innovation, supports long-term network health, and aligns incentives for ecosystem development.

Hedera Hashgraph incentivizes network participation through transaction fees and staking rewards, with a structured and predictable fee model designed for enterprise use.

Incentive Mechanisms:

1. Staking Rewards for Nodes:

- HBAR Rewards for Node Operators: Node operators earn HBAR rewards for providing network security and processing transactions, incentivizing them to act honestly and support network stability.
- User Staking: HBAR holders can stake their tokens to support nodes. Staking rewards offer an additional incentive for token holders to engage in network operations, although the structure may evolve with network growth.

2. Service-Based Node Rewards:

Nodes receive rewards based on specific services they provide to the network, such as:

- Consensus Services: Reaching consensus and maintaining transaction order.
- File Storage: Storing data on the Hedera network.

- Smart Contract Processing: Supporting contract executions for decentralized applications.

Applicable Fees:

1. Predictable Transaction Fees: Hedera's fee structure is fixed and predictable, ensuring transparent costs for users and appealing to enterprise-grade applications. Transaction fees are paid in HBAR and are designed to be stable, making it easier for businesses to plan for usage costs.
2. Fee Allocation: All transaction fees collected in HBAR are distributed to network nodes as rewards, reinforcing their role in maintaining network integrity and processing transactions efficiently.

Hyperliquid incentivizes participants through its native token, HYPE. Validators and delegators earn rewards in HYPE for securing the network and participating in governance. Users can also earn HYPE by staking, providing liquidity, and engaging in other ecosystem activities. This dual-token system encourages active participation and supports the network's growth and stability.

Hyperliquid employs a dynamic fee model where transaction fees are based on network activity and the complexity of the transactions. These fees are paid by users conducting transactions on the network and are designed to cover the costs of processing transactions while incentivizing validators.

Injective incentivizes network participation through staking rewards and a unique transaction fee model that supports long-term value for INJ tokens.

Incentive Mechanisms:

Staking Rewards:

INJ holders earn rewards for staking their tokens, encouraging active participation in securing the network.

Validator Rewards:

Validators receive staking rewards and transaction fees for processing transactions and maintaining network security.

Applicable Fees:

Transaction Fees:

Users pay fees in INJ tokens for network transactions, including smart contract execution and trading.

Fee Structure:

A portion of transaction fees is burned via a weekly on-chain auction, reducing the overall supply of INJ tokens and supporting a deflationary tokenomics model.

Like Ethereum, the Network uses a gas system, where gas is the unit of computational effort required to process a transaction. All gas fees on the Network are paid in Ether (ETH). The Network has a base fee that is designed to stabilize at 7 wei. The base fee still decreases or increases based on network traffic, similar to Ethereum, but it does not go below 7 wei. The Network does not require token staking for transaction validation purposes and thus provides no staking rewards. It does not offer incentives for running a full network node. It does charge fees collected by the sequencer for transaction processing. Those fees are paid in ETH, 20% of which are immediately burned while the remaining 80% are converted to Tokens and then burned.

NEAR Protocol employs several economic mechanisms to secure the network and incentivize participation.

Incentive Mechanisms to Secure Transactions:

1. Staking Rewards:

Validators and delegators secure the network by staking NEAR tokens. Validators earn around 5% annual inflation, with 90% of newly minted tokens distributed as staking rewards. Validators propose blocks, validate transactions, and receive a share of these rewards based on their staked tokens. Delegators earn rewards proportional to their delegation, encouraging broad participation.

2. Delegation:

Token holders can delegate their NEAR tokens to validators to increase the validator's stake and improve the chances of being selected to validate transactions. Delegators share in the validator's rewards based on their delegated tokens, incentivizing users to support reliable validators.

3. Slashing and Economic Penalties:

Validators face penalties for malicious behavior, such as failing to validate correctly or acting dishonestly. The slashing mechanism enforces security by deducting a portion of their staked tokens, ensuring validators follow the network's best interests.

4. Epoch Rotation and Validator Selection:

Validators are rotated regularly during epochs to ensure fairness and prevent centralization. Each epoch reshuffles validators, allowing the protocol to balance decentralization with performance.

Fees on the NEAR Blockchain:

1. Transaction Fees:

Users pay fees in NEAR tokens for transaction processing, which are burned to reduce the total circulating supply, introducing a potential deflationary effect over time. Validators also receive a portion of transaction fees as additional rewards, providing an ongoing incentive for network maintenance.

2. Storage Fees:

NEAR Protocol charges storage fees based on the amount of blockchain storage consumed by accounts, contracts, and data. This requires users to hold NEAR tokens as a deposit proportional to their storage usage, ensuring the efficient use of network resources.

3. Redistribution and Burning:

A portion of the transaction fees (burned NEAR tokens) reduces the overall supply, while the rest is distributed to validators as compensation for their work. The burning mechanism helps maintain long-term economic sustainability and potential value appreciation for NEAR holders.

4. Reserve Requirement:

Users must maintain a minimum account balance and reserves for data storage, encouraging efficient use of resources and preventing spam attacks.

Optimism charges lower transaction fees than Ethereum Layer 1, as transactions are bundled in the rollup and written to the Ethereum main chain in compressed form. Gas fees on Optimism continue to be paid in ETH. The incentive model is based on increased efficiency for users (lower fees, faster confirmation) and on the role of sequencers. Sequencers are central actors who collect, organize, and include transactions in the rollup. Their revenue comes from the gas fees they charge.

The network is described as applying transaction fees as a core economic mechanism to support network operation and security. Fee flows may be used to remunerate relevant network roles (for example, sequencer- or validator-related functions, if and to the extent such roles exist in the deployed architecture). In addition, PLUME is described as being used in connection with incentive and participation mechanisms, including potential staking-related arrangements and interaction with DeFi applications. Any yields, rewards, or other economic benefits are contingent on protocol

parameters, market conditions, and user behaviour, and may be changed by governance or technical updates, or may not materialise as expected.

Polygon PoS uses economic incentives to support validator participation, transaction processing, and network operation. Validators stake POL tokens and participate in block production, validation, voting, and checkpoint finalisation. Validators may receive rewards connected to their participation in the network, including rewards linked to validation activities and transaction-fee allocation, depending on the applicable protocol rules. Token holders who do not operate validator infrastructure may delegate POL tokens to validators. Delegators may receive a share of rewards attributable to the validator to whom they delegate, subject to the validator's commission and applicable protocol rules. Delegation increases the validator's effective stake and may affect its role in the validator set and related network processes. Following the Rio upgrade, Polygon PoS introduced a Validator-Elected Block Producer model, under which validators elect the block producer or block producers for a span. Publicly described protocol changes associated with this model also provide for redistribution of fees, including maximum extractable value-related fees where applicable, to non-producing validators under the relevant protocol design. This changes the incentive structure from the previous model in which block production selection was more directly described by reference to stake-weighted producer selection. Polygon PoS includes protocol specifications for validator penalties, including slashing-related concepts. Transactions on Polygon PoS require payment of network fees in POL. Fees apply to ordinary token transfers, smart contract deployment, and smart contract interaction. The amount of fees may vary depending on network demand, transaction complexity, and computational resources required. Because Polygon PoS processes transactions independently from Ethereum, transaction fees are generally designed to be lower than equivalent activity on the Ethereum mainnet, although actual fees may change according to network conditions and protocol parameters.

The Ripple XRP blockchain uses a unique incentive structure that differs from traditional Proof of Work (PoW) or Proof of Stake (PoS) systems, focusing on its Ripple Protocol Consensus Algorithm (RPCA).

Incentive Mechanisms to Secure Transactions:

1. Validators: Validators on the Ripple network are not directly compensated with rewards like in PoW/PoS models. Instead, they are incentivized by the utility and stability of the network, particularly financial institutions that benefit from Ripple's efficiency in cross-border payments.
2. No Mining: Since Ripple does not use mining, it eliminates the need for energy-intensive computations, contributing to fast transaction speeds and scalability.

Fees on the Ripple XRP Blockchain:

1. Transaction Fees: Ripple charges minimal transaction fees (typically fractions of an XRP, known as "drops") for each transaction. The purpose of these fees is to prevent network spam and overload.
2. Burn Mechanism: A portion of each transaction fee is burned, meaning it's permanently removed from circulation. This reduces the overall supply of XRP over time, contributing to potential long-term value stability.

The Sei Network incentivizes participation through staking rewards and a transparent fee structure, supporting its decentralized ecosystem.

Incentive Mechanisms:

- Staking Rewards: Validators and delegators earn SEI tokens as rewards for securing the network through staking, promoting active engagement and long-term commitment.

- Governance Participation: SEI token holders can participate in network governance decisions, influencing protocol upgrades and key changes.

Applicable Fees:

Transaction Fees: Users pay fees in SEI tokens for network transactions. These fees are distributed to validators and delegators as rewards, supporting network operations and security.

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.
- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.

2. Delegators:

- Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.

3. Economic Security:

- Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
- Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Fees Applicable on the Solana Blockchain

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.

2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.

3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.

4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

Sonic's economic model is designed to incentivize active participation from both validators and developers. Validators earn rewards through a combination of block rewards and transaction fees. The block reward system employs a dynamic Annual Percentage Rate (APR) mechanism.

Starknet's incentive model combines transaction fees and plans for future staking rewards to support network operations and security.

Incentive Mechanisms:

- Transaction Fees: Users pay fees in Ether (ETH) to compensate sequencers and cover the cost of proof submission and storage on Ethereum.
- Dynamic Fee Model: Fees adjust based on transaction complexity and resource requirements, ensuring fair cost distribution and efficient network usage.
- Future Staking Rewards: Planned staking mechanisms will incentivize participants to lock their STARK tokens, enhancing network security and governance.

Statemint is a common-good parachain on the Polkadot and Kusama networks, designed to enable efficient asset management while benefiting from Polkadot's shared security and governance model.

Incentive Mechanisms:

- Relay Chain Validators: Validators securing the Polkadot Relay Chain are indirectly incentivized through block rewards and transaction fees collected across all parachains, including Statemint. This ensures the stability and security of the network without requiring Statemint-specific rewards.
- Collator Compensation: Collator nodes aggregate transactions and produce blocks for Statemint. They may be compensated through external arrangements, such as subsidies or user-driven incentives, depending on governance decisions and usage patterns.
- Governance Participation: Polkadot (DOT) and Kusama (KSM) token holders influence Statemint's operations, such as fee adjustments and protocol upgrades, through on-chain governance mechanisms.

Applicable Fees:

- Transaction Fees: Users pay transaction fees in the native tokens of the Relay Chain, DOT for Polkadot or KSM for Kusama. These fees are distributed to Relay Chain validators to support the network's maintenance.
- Asset Creation and Transfer Fees: Fees apply for creating new assets and transferring them on the Statemint chain. These fees help prevent spam and ensure efficient use of network resources.
- Governance-Defined Fee Adjustments: The Statemint parachain's fees can be adjusted through governance proposals, enabling the community to adapt costs to network conditions.

Stellar does not use block rewards or mining. Instead, validators operate without direct protocol-level rewards. While this design keeps costs low, it may reduce incentives for validator participation compared to staking-based models. The sustainability of validator engagement depends largely on external factors such as institutional involvement and ecosystem adoption.

Security and Economic Incentives:

1. Validators:

Validators stake SUI tokens to participate in the consensus process. They earn rewards for validating transactions and securing the network.

2. Slashing:

Validators can be penalized (slashed) for malicious behavior, such as double-signing or failing to properly validate transactions. This helps maintain network security and incentivizes honest behavior.

3. Delegation:

Token holders can delegate their SUI tokens to trusted validators. In return, they share in the rewards earned by validators. This encourages widespread participation in securing the network.

Fees on the SUI Blockchain:

1. Transaction Fees:

Users pay transaction fees to validators for processing and confirming transactions. These fees are calculated based on the computational resources required to process the transaction. Fees are paid in SUI tokens, which is the native cryptocurrency of the Sui blockchain.

2. Dynamic Fee Model:

The transaction fees on Sui are dynamic, meaning they adjust based on network demand and the complexity of the transactions being processed.

The Tron blockchain uses a Delegated Proof of Stake (DPoS) consensus mechanism to secure its network and incentivize participation.

Incentive Mechanism:

1. Super Representatives (SRs) Rewards:

- Block Rewards: Super Representatives (SRs), who are elected by TRX holders, are rewarded for producing blocks. Each block they produce comes with a block reward in the form of TRX tokens.
- Transaction Fees: In addition to block rewards, SRs receive transaction fees for validating transactions and including them in blocks. This ensures they are incentivized to process transactions efficiently.

2. Voting and Delegation:

- TRX Staking: TRX holders can stake their tokens and vote for Super Representatives (SRs). When TRX holders vote, they delegate their voting power to SRs, which allows SRs to earn rewards in the form of newly minted TRX tokens.
- Delegator Rewards: Token holders who delegate their votes to an SR can also receive a share of the rewards. This means delegators share in the block rewards and transaction fees that the SR earns.
- Incentivizing Participation: The more tokens a user stakes, the more voting power they have, which encourages participation in governance and network security.

3. Incentive for SRs:

SRs are also incentivized to maintain the health and performance of the network. Their reputation and continued election depend on their ability to produce blocks consistently and efficiently process transactions.

Applicable Fees:

1. Transaction Fees:

- Fee Calculation: Users must pay transaction fees to have their transactions processed. The transaction fee varies based on the complexity of the transaction and the network's current demand. This is paid in TRX tokens. Transaction
- Fee Distribution: Transaction fees are distributed to Super Representatives (SRs), giving them an ongoing income to maintain and support the network.

2. Storage Fees:

Tron charges storage fees for data storage on the blockchain. This includes storing smart contracts, tokens, and other data on the network. Users are required to pay these fees in TRX tokens to store data.

3. Energy and Bandwidth:

Energy: Tron uses a resource model that allows users to access network resources like bandwidth and energy through staking. Users who stake their TRX tokens receive \energy

XinFin incentivizes both validators and token holders to actively participate in network security and stability through staking and fee distribution mechanisms.

Incentive Mechanisms:

1. Staking Rewards:

- Validator Rewards: Validators earn XDC token rewards for validating transactions and maintaining network security.
- Delegator Rewards: XDC holders who delegate their tokens to validators receive a share of staking rewards, promoting community participation without requiring users to operate nodes.

2. Delegation Model:

Passive Income: XDC holders can delegate tokens to validators, enabling them to earn rewards passively and boosting network security through broader staking participation.

Applicable Fees:

- Fee Distribution: All transactions incur XDC fees, which are distributed to validators as additional rewards for their role in securing the network.
- Predictable Fees for Enterprises: Transaction fees are kept low and predictable, supporting XinFin's focus on enterprise use cases in finance, trade, and cross-border payments.

zkSync incentivizes network participants through a streamlined fee structure and role-based rewards, designed to ensure security, scalability, and usability for both users and validators.

Incentive Mechanism:

- Validator Rewards: Validators, who generate validity proofs and secure the network, are compensated through transaction fees paid by users. Their role ensures that batches of transactions are processed efficiently and accurately.
- Sequencer Incentives: Sequencers are responsible for bundling and ordering transactions off-chain. They earn a share of the transaction fees for maintaining network performance and fast processing times.
- Ecosystem Growth Rewards: zkSync allocates resources to incentivize developers and projects building on its platform, fostering a robust ecosystem of dApps, DeFi protocols, and NFT marketplaces.

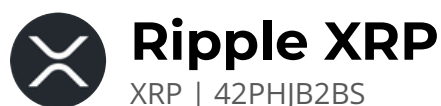
Applicable Fees:

- Transaction Fees: Users pay fees in Ether (ETH) for transactions on zkSync. These fees are significantly lower than Ethereum Layer 1 fees, as zkSync processes transactions off-chain and submits only aggregated proofs to the Ethereum mainnet.
- Fee Model: Fees are dynamically calculated based on the complexity of transactions (e.g., token transfers, smart contract interactions) and the cost of submitting validity proofs to Ethereum.
- Scalability Benefits: zkSync's efficient rollup architecture reduces gas fees for users while ensuring that validators and sequencers are appropriately compensated for their roles.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) algorand, aptos_coin, arbitrum, avalanche, base, celo, ethereum, flow, hedera_hbar, hyperliquid, injective, linea, near_protocol, optimism, plume, polygon, ripple, sei, solana, sonic, starknet, statemint, stellar, sui, tron, xdc_network, zksync is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Ripple XRP

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Ripple XRP	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	456257.37168	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ripple XRP is present on the following networks: Binance Smart Chain, Klaytn, Ripple.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Klaytn employs a modified Istanbul Byzantine Fault Tolerance (IBFT) consensus algorithm, a variant of Proof of Authority (PoA), enabling high performance and immediate transaction finality.

Core Components of Klaytn's Consensus:

1. Modified IBFT Algorithm:

Immediate Transaction Finality: Klaytn's IBFT algorithm ensures that once a block is validated, it is immediately final and cannot be reversed. This guarantees that transactions are quickly settled, providing a secure and efficient user experience.

2. Klaytn Governance Council:

- Council-Driven Governance: The Klaytn network is governed by the Klaytn Governance Council, a consortium of global organizations responsible for selecting and maintaining Consensus Nodes (CNs). This council-based governance model balances decentralization with performance and ensures transparency in decision-making.

- Two-Thirds Majority for Finalization: For a block to be finalized, it must receive signatures from more than two-thirds of the council members, ensuring broad consensus and network security.

3. Three-Tiered Node Architecture:

- Consensus Nodes (CNs): The selected validators responsible for producing and validating blocks. CNs are at the core of the network's security and stability.

- Proxy Nodes (PNs): Act as intermediaries, relaying data between CNs and the broader network, which helps distribute network traffic and improve accessibility.

- Endpoint Nodes (ENs): Interface directly with end-users, facilitating transactions, executing smart contracts, and serving as user access points to the Klaytn network.

The Ripple blockchain, specifically the XRP Ledger (XRPL), uses a consensus mechanism known as the Ripple Protocol Consensus Algorithm (RPCA). It differs from Proof of Work (PoW) and Proof of Stake (PoS) as it doesn't rely on mining or staking but instead leverages trusted validators in a Federated Byzantine Agreement (FBA) model.

Core Concepts:

1. Validators and Unique Node Lists (UNL):

Validators are trusted nodes in the network that validate transactions and propose new ledger updates. Each node maintains a list of trusted validators known as its Unique Node List (UNL). Consensus is achieved when 80% of the validators in a node's UNL agree on the validity of a transaction or block. This ensures high levels of security and decentralization.

2. Transaction Ordering and Validation:

Transactions are broadcast to validators, and once 80% of the validators agree, the transaction is considered confirmed. Each ledger in the XRPL contains transaction data, and validators ensure the validity and proper ordering of these transactions.

Consensus Process:

1. Proposal Phase:

Validators propose new transactions to be added to the ledger.

2. Validation Phase:

Validators vote on proposed transactions by comparing them to their UNL. Consensus is achieved when 80% of validators agree.

3. Finalization:

Once consensus is reached, the transactions are written into the new ledger, making them irreversible and final.

S.5 Incentive Mechanisms and Applicable Fees

Ripple XRP is present on the following networks: Binance Smart Chain, Klaytn, Ripple.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that

proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Klaytn's incentive structure includes block rewards and transaction fees distributed to Consensus Nodes (CNs) and various network funds, fostering network security, sustainability, and community development.

Incentive Mechanisms:

1. Rewards for Consensus Nodes (CNs):

- Fixed Block Rewards: CNs earn fixed rewards in KLAY tokens for validating and producing blocks. This predictable income incentivizes CNs to maintain active participation and secure the network.
- Transaction Fees: Users pay transaction fees in KLAY tokens, which are collected by the network and distributed among the CNs as additional rewards, further supporting network security and stability.

2. Block Reward Distribution: Governance Council (GC) Reward:

- GC Block Proposer Reward: 10% of the block reward goes to the specific CN that proposed the block, incentivizing continuous active participation.
- GC Staking Award: 40% of the block reward is distributed among all Governance Council members who stake KLAY, promoting network security by rewarding staked tokens.
- Klaytn Community Fund (KCF): 30% of each block reward is allocated to the KCF to support community development, dApp creation, and overall ecosystem growth.
- Klaytn Foundation Fund (KFF): 20% of the block reward goes to the KFF, providing resources for long-term network sustainability and future development initiatives.

3. Transaction Fees:

- User Fees for Network Interaction: Users pay fees in KLAY based on gas usage and gas price for transactions. These fees are then distributed to CNs, incentivizing efficient transaction processing and active participation.

Applicable Fees:

Transaction Fees: Transaction fees on Klaytn are paid in KLAY and calculated based on gas consumption. These fees support network maintenance by compensating validators and fostering economic sustainability.

The Ripple XRP blockchain uses a unique incentive structure that differs from traditional Proof of Work (PoW) or Proof of Stake (PoS) systems, focusing on its Ripple Protocol Consensus Algorithm (RPCA).

Incentive Mechanisms to Secure Transactions:

1. **Validators:** Validators on the Ripple network are not directly compensated with rewards like in PoW/PoS models. Instead, they are incentivized by the utility and stability of the network, particularly financial institutions that benefit from Ripple's efficiency in cross-border payments.
2. **No Mining:** Since Ripple does not use mining, it eliminates the need for energy-intensive computations, contributing to fast transaction speeds and scalability.

Fees on the Ripple XRP Blockchain:

1. **Transaction Fees:** Ripple charges minimal transaction fees (typically fractions of an XRP, known as "drops") for each transaction. The purpose of these fees is to prevent network spam and overload.
2. **Burn Mechanism:** A portion of each transaction fee is burned, meaning it's permanently removed from circulation. This reduces the overall supply of XRP over time, contributing to potential long-term value stability.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

To determine the energy consumption of a token, the energy consumption of the network(s) binance_smart_chain, klaytn is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary

principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Arweave

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Arweave	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	437562.14181	kWh/a

Qualitative information

S.4 Consensus Mechanism

Arweave is present on the following networks: Arweave, Ethereum.

Arweave employs a unique Proof of Access (PoA) consensus mechanism, which integrates a requirement for miners to provide cryptographic proof of access to historical data, known as a "recall block." This ensures that miners contribute to both data storage and network security by storing and verifying historical data.

Core Components:

1. Proof of Access (PoA):

- Recall Block Verification: During mining, miners must retrieve and validate a randomly selected "recall block" from Arweave's data history, proving they retain access to stored data. This process secures the network while emphasizing long-term data availability.
- Enhanced Proof of Work (PoW): PoA builds upon traditional PoW by requiring miners to demonstrate access to previously stored data, adding a storage-focused layer to network security and incentivizing distributed data retention.

2. Data-Centric Mining Incentives:

Distributed Storage: The PoA design encourages miners to store a broad history of blocks, as possessing more recall blocks enhances their probability of successfully mining new blocks and earning rewards.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Arweave is present on the following networks: Arweave, Ethereum.

Arweave's economic model incentivizes miners to contribute to data storage through upfront storage fees and ongoing block rewards, supporting the network's mission of providing permanent and accessible data storage.

Incentive Mechanisms:

1. One-Time Storage Fees:

Permanent Data Storage: Users pay a one-time, upfront fee in AR tokens, calculated based on data size and projected storage costs. This fee funds indefinite data storage on the network.

Endowment Pool: A portion of each storage fee is allocated to an endowment pool, covering future storage costs as technology advances, ensuring sustainable, permanent data storage.

2. Mining Rewards:

Block Rewards: Miners earn AR tokens for successfully mining blocks, incentivizing them to store historical data and maintain network integrity.

Applicable Fees: Storage fees in AR are set by data size and projected long-term costs, covering the initial and future costs of data permanence.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Algorand

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Algorand	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	420961.80000	kWh/a

Qualitative information

S.4 Consensus Mechanism

The Algorand blockchain utilizes a consensus mechanism termed Pure Proof-of-Stake (PPoS). Consensus, in this context, describes the method by which blocks are selected and appended to the blockchain. Algorand employs a verifiable random function (VRF) to select leaders who propose blocks for each round.

Upon block proposal, a pseudorandomly selected committee of voters is chosen to evaluate the proposal. If a supermajority of these votes are from honest participants, the block is certified. What makes this algorithm a Pure Proof of Stake is that users are chosen for committees based on the number of algos in their accounts. This system leverages random committee selection to maintain high performance and inclusivity within the network.

The consensus process involves three stages:

1. Propose: A leader proposes a new block.
2. Soft Vote: A committee of voters assesses the proposed block.
3. Certify Vote: Another committee certifies the block if it meets the required honesty threshold.

S.5 Incentive Mechanisms and Applicable Fees

Algorand's consensus mechanism, Pure Proof-of-Stake (PPoS), relies on the participation of token holders (stakers) to ensure the network's security and integrity:

1. Participation Rewards:
 - Staking Rewards: Users who participate in the consensus protocol by staking their ALGO tokens earn rewards. These rewards are distributed periodically and are proportional to the amount of ALGO staked. This incentivizes users to hold and stake their tokens, contributing to network security and stability.
 - Node Participation Rewards: Validators, also known as participation nodes, are responsible for proposing and voting on blocks. These nodes receive additional rewards for their active role in maintaining the network.
2. Transaction Fees:
 - Flat Fee Model: Algorand employs a flat fee model for transactions, which ensures predictability and simplicity. The standard transaction fee on Algorand is very low (around 0.001 ALGO per transaction). These fees are paid by users to have their transactions processed and included in a block.
 - Fee Redistribution: Collected transaction fees are redistributed to participants in the network. This includes stakers and validators, further incentivizing their participation and ensuring continuous network operation.
3. Economic Security:

Token Locking: To participate in the consensus mechanism, users must lock up their ALGO tokens. This economic stake acts as a security deposit that can be slashed (forfeited) if the participant acts maliciously. The potential loss of staked tokens discourages dishonest behavior and helps maintain network integrity.

Fees on the Algorand Blockchain

1. Transaction Fees:

Algorand uses a flat transaction fee model. The current standard fee is 0.001 ALGO per transaction. This fee is minimal compared to other blockchain networks, ensuring affordability and accessibility.
2. Smart Contract Execution Fees:

Fees for executing smart contracts on Algorand are also designed to be low. These fees are based on the computational resources required to execute the contract, ensuring that users are only charged for the actual resources they consume.
3. Asset Creation Fees:

Creating new assets (tokens) on the Algorand blockchain involves a small fee. This fee is necessary to prevent spam and ensure that only genuine assets are created and maintained on the network.

S.9 Energy consumption sources and methodologies

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we

update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Sui

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Sui	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	394725.60000	kWh/a

Qualitative information

S.4 Consensus Mechanism

The Sui blockchain utilizes a Byzantine Fault Tolerant (BFT) consensus mechanism optimized for high throughput and low latency.

Core Components:

1. Mysten Consensus Protocol:

- The Sui consensus is based on Mysten Labs' Byzantine Fault Tolerance (BFT) protocol, which builds on principles of Practical Byzantine Fault Tolerance (pBFT) but introduces key optimizations for performance.
- Leaderless Design: Unlike traditional BFT models, Sui does not rely on a single leader to propose blocks. Validators can propose blocks simultaneously, increasing efficiency and reducing the risks associated with leader failure or attacks.
- Parallel Processing: Transactions can be processed in parallel, maximizing network throughput by utilizing multiple cores and threads. This allows for faster confirmation of transactions and high scalability.

2. Transaction Validation:

Validators are responsible for receiving transaction requests from clients and processing them. Each transaction includes digital signatures and must meet the network's rules to be considered valid. Validators can propose transactions simultaneously, unlike many other networks that require a sequential, leader-driven process.

3. Optimistic Execution:

Optimistic Consensus: Sui allows validators to process certain non-contentious, independent transactions without waiting for full consensus. This is known as optimistic execution and helps reduce transaction latency for many use cases, allowing for fast finality in most cases.

4. Finality and Latency:

The system only requires three rounds of communication between validators to finalize a transaction. This results in low-latency consensus and rapid transaction confirmation times, achieving scalability while maintaining security.

5. Fault Tolerance:

The system can tolerate up to one-third of validators being faulty or malicious without compromising the integrity of the consensus process.

S.5 Incentive Mechanisms and Applicable Fees

Security and Economic Incentives:

1. Validators:

Validators stake SUI tokens to participate in the consensus process. They earn rewards for validating transactions and securing the network.

2. Slashing:

Validators can be penalized (slashed) for malicious behavior, such as double-signing or failing to properly validate transactions. This helps maintain network security and incentivizes honest behavior.

3. Delegation:

Token holders can delegate their SUI tokens to trusted validators. In return, they share in the rewards earned by validators. This encourages widespread participation in securing the network.

Fees on the SUI Blockchain:

1. Transaction Fees:

Users pay transaction fees to validators for processing and confirming transactions. These fees are calculated based on the computational resources required to process the transaction. Fees are paid in SUI tokens, which is the native cryptocurrency of the Sui blockchain.

2. Dynamic Fee Model:

The transaction fees on Sui are dynamic, meaning they adjust based on network demand and the complexity of the transactions being processed.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are

assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

To determine the energy consumption of a token, the energy consumption of the network(s) sui is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for EOS

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	EOS	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	344268.64132	kWh/a

Qualitative information

S.4 Consensus Mechanism

EOS is present on the following networks: Binance Smart Chain, Eos, Eos Evm.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

The EOS blockchain operates on a Delegated Proof of Stake (DPoS) consensus mechanism, designed to provide high transaction throughput and low latency.

Core Components of EOS Consensus:

- Delegated Proof of Stake (DPoS) with Block Producers (BPs) Voting for Block Producers: EOS token holders vote to select 21 block producers (BPs) who validate transactions and produce blocks. This voting process is continuous, with token holders able to reallocate their votes at any time, ensuring the active block producers are consistently those with the most community support.
- Active Rotation: The top 21 BPs are rotated regularly to maintain a decentralized and representative set of validators, helping secure the network while giving all selected BPs equal opportunities for block production. Byzantine Fault Tolerance (BFT) in DPoS EOS incorporates BFT principles within its DPoS consensus to finalize blocks with a high degree of security. Transactions gain irreversibility once approved by a majority of block producers, providing faster finality and reducing the risk of forks or double-spending attacks.
- High Throughput and Block Production Block Time: EOS block producers create blocks in 0.5-second intervals, facilitating a rapid transaction processing rate. If a block producer misses their turn, the system immediately switches to the next producer, keeping network latency minimal.

EOS EVM operates within the EOS blockchain, which utilizes a Delegated Proof of Stake (DPoS) consensus mechanism. In this system, EOS token holders vote to elect a set number of block producers responsible for validating transactions and adding new blocks to the blockchain. The EOS EVM functions as a smart contract on the EOS network, enabling Ethereum-compatible smart contracts to run within this DPoS framework.

S.5 Incentive Mechanisms and Applicable Fees

EOS is present on the following networks: Binance Smart Chain, Eos, Eos Evm.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees

in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

EOS incentivizes block producers to maintain the network and operates with unique staking and resource models to control transaction costs.

Incentive Mechanisms:

Block Producer Rewards Earning EOS Tokens: Block producers are rewarded in EOS tokens for validating transactions and producing blocks, providing the primary economic incentive for maintaining network operations and security. **Voting Rewards for BPs** Although not part of the core protocol, block producers often offer incentives to encourage token holders to vote for them. This encourages accountability, transparency, and performance, as EOS holders tend to favor reliable and engaged BPs.

Applicable Fees and Resource Model:

- **Fee-less Transactions for Users Resource Staking (CPU, NET):** Rather than charging direct transaction fees, EOS allows users to perform fee-less transactions by staking EOS tokens for network resources like CPU and NET bandwidth, which are required for transaction processing.
- **RAM for Storage:** dApp developers purchase RAM for data storage on the EOS network. RAM prices are determined through a market-based system, where supply and demand influence cost.
- **EOS EVM Gas Fees Dynamic Gas Model:** For transactions on the EOS EVM, gas fees are dynamically calculated, based on transaction demand, similar to Ethereum's gas model. These fees, paid in EOS tokens, enable Ethereum-compatible smart contracts to run on EOS, offering a familiar environment for EVM developers and users. **EOS EVM Integration With EOS EVM,** users and developers benefit from a familiar gas fee structure, allowing Ethereum-based applications to operate seamlessly on the EOS network while maintaining competitive costs.

Within the EOS EVM environment, users pay gas fees denominated in EOS tokens for executing smart contracts and transactions. These fees are designed to mirror Ethereum's gas model to maintain compatibility with Ethereum-based tools and applications. The collected fees are distributed to EOS block producers as compensation for their role in validating transactions and maintaining the network's integrity. This fee structure ensures that the execution of Ethereum-compatible smart contracts on EOS is both efficient and economically sustainable.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

To determine the energy consumption of a token, the energy consumption of the network(s) binance_smart_chain is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Merlin

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Merlin	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	329253.98176	kWh/a

Qualitative information

S.4 Consensus Mechanism

Merlin Chain employs a Zero-Knowledge Rollup (ZK-Rollup) architecture and additional mechanisms to ensure efficient, secure, and decentralized transaction processing; transactions are aggregated off-chain into a single cryptographic proof before submission to the Bitcoin mainnet, enhancing scalability and reducing costs while leveraging Bitcoin's security; a Data Availability Committee (DAC) manages off-chain data validity and accessibility, ensuring integrity and transparency in the ZK-Rollup process; a two-step Zero-Knowledge Proof submission mechanism allows miners to participate in proof generation and submission, decentralizing the security model and creating a stable computational environment.

S.5 Incentive Mechanisms and Applicable Fees

Merlin Chain's incentive model ensures fair compensation for validators and a transparent fee structure for users; validators earn rewards from transaction fees for securing the network and processing transactions on both Layer 2 (L2) and Layer 1 (L1); L2 fees cover the cost of executing transactions on Merlin Chain's Layer 2 network, while L1 security fees cover the cost of transmitting aggregated transaction data and ZK proofs to the Bitcoin mainnet for finalization; the gas fee model, similar to EVM-compatible chains, determines fees based on network usage and computational requirements, ensuring predictable and efficient fee allocation.

S.9 Energy consumption sources and methodologies

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. Due to the structure of this network, it is not only the mainnet that is responsible for energy consumption. In order to calculate the structure adequately, a proportion of the energy consumption of the connected network, bitcoin, must also be taken into account, because the connected network is also responsible for security. This proportion is determined on the basis of gas consumption. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Tezos

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Tezos	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	282247.52516	kWh/a

Qualitative information

S.4 Consensus Mechanism

Tezos is present on the following networks: Binance Smart Chain, Tezos.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Tezos operates on a Liquid Proof of Stake (LPoS) consensus mechanism, which combines flexibility in staking participation with an on-chain governance model.

Core Components:

Liquid Proof of Stake (LPoS) Tezos allows token holders to participate in staking by either directly staking their tokens or delegating them to a validator (known as a baker) without transferring ownership. Validators (bakers) are responsible for creating new blocks (baking) and endorsing other blocks for validation. Bakers and Endorsers Bakers are selected based on the amount of XTZ (Tezos tokens) staked or delegated to them. The more XTZ staked, the higher the probability of being chosen to bake or endorse blocks. Endorsers are randomly selected from a pool of bakers to validate and approve blocks baked by other bakers. This additional validation enhances network security. Self-Amendment and Governance Tezos's unique governance model allows token holders to propose, vote on, and implement network upgrades without requiring hard forks. This self-amendment protocol enables Tezos to evolve based on community and developer input, making it highly adaptable and flexible.

S.5 Incentive Mechanisms and Applicable Fees

Tezos is present on the following networks: Binance Smart Chain, Tezos.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Tezos incentivizes network participation and security through baking rewards, transaction fees, and an inflationary reward model.

Incentive Mechanisms:

Rewards for Baking and Endorsing Bakers receive XTZ rewards for baking new blocks. Endorsers, who validate and approve blocks baked by others, are also rewarded in XTZ. These rewards encourage active participation and help secure the network. Delegation Incentives XTZ holders who do not wish to bake can delegate their tokens to a baker, earning a share of the baker's rewards without directly participating. This delegation option broadens participation, making it accessible to more users, thereby enhancing overall network security. Security Deposit Requirement Bakers are required to post a bond (security deposit) in XTZ to bake blocks, which is held as collateral to prevent dishonest actions. If a baker acts maliciously, they risk forfeiting this bond, creating a disincentive for bad behavior and aligning bakers' interests with network integrity.

Applicable Fees:

Transaction Fees Users pay transaction fees in XTZ for activities such as transferring funds and interacting with smart contracts. These fees are awarded to bakers and endorsers, providing them with an additional incentive to validate and secure the network. Inflationary Reward Model Tezos has an inflationary reward system, where new XTZ tokens are periodically created and distributed as rewards to bakers and endorsers. This model encourages continuous participation but gradually increases the XTZ supply, balancing network security and token availability over time.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

To determine the energy consumption of a token, the energy consumption of the network(s) binance_smart_chain is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

The following sources were used: tzStats



Quantitative information

Quantitative sustainability indicators for Wallet Connect

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Wallet Connect	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	269238.60000	kWh/a

Qualitative information

S.4 Consensus Mechanism

WalletConnect Network does not utilize a traditional blockchain consensus mechanism such as Proof of Work (PoW) or Proof of Stake (PoS). Instead, it operates as a decentralized communication protocol that facilitates secure connections between decentralized applications (dApps) and cryptocurrency wallets across various blockchain ecosystems. The network employs end-to-end encryption to ensure the confidentiality and integrity of the data exchanged between parties. This design allows users to interact seamlessly with dApps using their preferred wallets without relying on a centralized intermediary.

S.5 Incentive Mechanisms and Applicable Fees

The WalletConnect Network uses the WalletConnect Token (WCT) to support participation and decentralization. While initially fee-free, the network may introduce usage fees over time through governance decisions. Node operators and participants are rewarded in WCT based on performance, such as uptime and reliability. WCT can also be staked, allowing holders to earn rewards and take part in protocol governance. This model aims to ensure long-term sustainability and align the interests of infrastructure providers, wallets, and users.

S.9 Energy consumption sources and methodologies

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Aptos Coin

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Aptos Coin	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	262800.00000	kWh/a

Qualitative information

S.4 Consensus Mechanism

Aptos utilizes a Proof-of-Stake approach combined with a BFT consensus protocol to ensure high throughput, low latency, and secure transaction processing.

Core Components:

- Parallel Execution: Transactions are processed concurrently using Block-STM, a parallel execution engine, enabling high performance and scalability.
- Leader-Based BFT: A leader is selected among validators to propose blocks, while others validate and finalize transactions.
- Dynamic Validator Rotation: Validators are rotated regularly, enhancing decentralization and preventing collusion.
- Instant Finality: Transactions achieve finality once validated, ensuring that they are irreversible.

S.5 Incentive Mechanisms and Applicable Fees

Incentive Mechanism:

- Validator Rewards: Validators earn rewards in APT tokens for validating transactions and producing blocks. Rewards are distributed proportionally based on the stake of validators and their delegators.

- Delegator Participation: APT token holders can delegate their tokens to validators, earning a share of the staking rewards without running their own nodes.
- Slashing Mechanism: Validators face penalties, such as losing staked tokens, for malicious actions or prolonged inactivity, ensuring accountability and network security.

Applicable Fees:

- Transaction Fees: Users pay transaction fees in APT tokens for sending transactions and interacting with smart contracts.
- Dynamic Fee Adjustment: Fees are dynamically adjusted based on network activity and resource usage, ensuring cost efficiency and preventing congestion.
- Fee Distribution: Transaction fees are distributed among validators and delegators, providing an additional incentive for network participation.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

To determine the energy consumption of a token, the energy consumption of the network(s) aptos_coin is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Saga

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Saga	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	262800.00000	kWh/a

Qualitative information

S.4 Consensus Mechanism

Saga is a Layer-1 protocol built on the Cosmos SDK, utilizing a Proof of Stake (PoS) consensus mechanism facilitated by the CometBFT (formerly Tendermint) consensus engine. Validators are selected based on the amount of SAGA tokens staked, with the top validators by voting power becoming active participants in the consensus process.

These validators commit new blocks to the blockchain by broadcasting votes with cryptographic signatures, ensuring the network's security and transaction finality.

S.5 Incentive Mechanisms and Applicable Fees

In the Saga ecosystem, developers can deploy dedicated blockchains, known as Chainlets, with ease. End-users pay transaction fees to Chainlet developers, who in turn pay gas fees to the Saga mainnet. This structure grants developers flexibility in determining how end-user transaction fees are utilized. Gas fees can be paid with SAGA tokens or other tokens such as ETH or USDC, providing adaptability in fee management.

S.9 Energy consumption sources and methodologies

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites,

open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. Due to the structure of this network, it is not only the mainnet that is responsible for energy consumption. In order to calculate the structure adequately, a proportion of the energy consumption of the connected network, cosmos, must also be taken into account, because the connected network is also responsible for security. This proportion is determined on the basis of gas consumption. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Berachain BERA

BERA | L7XQXLN44

Quantitative information

Quantitative sustainability indicators for Berachain BERA

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Berachain BERA	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	244404.00000	kWh/a

Qualitative information

S.4 Consensus Mechanism

Berachain utilizes a unique consensus mechanism called Proof-of-Liquidity (PoL). In this system, validators secure the network by staking the native gas token, \$BERA. The likelihood of a validator being selected to propose a block is proportional to the amount of \$BERA they have staked. Upon successfully proposing a block, validators receive rewards in the form of \$BGT (Bera Governance Token). The amount of \$BGT awarded is influenced by the level of \$BGT delegation they have received from other participants. This mechanism aligns the incentives of validators, protocols, and users, contributing to the overall long-term health of the chain.

S.5 Incentive Mechanisms and Applicable Fees

In Berachain's economic model, validators and delegators are incentivized through a combination of staking rewards and protocol-provided incentives. Validators earn \$BGT rewards for block production, with the reward size determined by their boost, which is a percentage calculated from the validator's \$BGT boost out of the total \$BGT boosted to all validators. Validators can direct their \$BGT emissions to whitelisted Reward Vaults of their choosing, and in exchange, they receive protocol-provided incentives from these Reward Vaults. Delegators, by staking their \$BGT with validators, can influence the validator's boost and share in the rewards. Transaction fees on the network are paid in \$BERA and are burned, removing them from the circulating supply. This structure ensures that all participants are motivated to contribute to the network's security and efficiency.

S.9 Energy consumption sources and methodologies

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Injective Token

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Injective Token	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	242658.91085	kWh/a

Qualitative information

S.4 Consensus Mechanism

Injective Token is present on the following networks: Binance Smart Chain, Cosmos, Ethereum, Injective, Osmosis.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 "Cabinet" validators and 24 "Candidate" validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

The Cosmos network uses the Cosmos SDK, a modular framework that enables developers to build custom, application-specific blockchains. Cosmos SDK chains rely on Tendermint Core, a Byzantine

Fault Tolerant (BFT) Proof of Stake (PoS) consensus engine that supports interoperability and fast transaction finality.

Core Components:

1. Tendermint BFT Consensus with Proof of Stake:

- Validator Selection: Cosmos validators are selected based on the amount of ATOM they stake or receive from delegators. These validators participate in block proposal and validation through a two-thirds majority voting system.
- Security Threshold: Tendermint BFT ensures network security as long as fewer than one-third of validators act maliciously.

2. Modular Cosmos SDK Framework:

- Inter-Blockchain Communication (IBC): The Cosmos SDK supports IBC, allowing seamless interoperability between Cosmos-based blockchains.
- Application Blockchain Interface (ABCI): This interface separates the consensus layer from the application layer, enabling developers to implement custom logic without modifying the consensus engine.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

Injective operates on a Tendermint-based Proof of Stake (PoS) consensus model, ensuring high throughput and immediate transaction finality.

Core Components:

- Tendermint-based Proof of Stake (PoS):

Ensures instant transaction finality and supports efficient block production for high-speed transactions.

- Validator Selection:

Validators are chosen based on the amount of INJ tokens staked, considering both self-staked and delegated tokens, to maintain a decentralized network.

- Delegation:

INJ holders can delegate their tokens to validators, earning a share of staking rewards while participating in network governance.

- Instant Finality:

The Tendermint consensus mechanism provides immediate finality, ensuring transactions cannot be reversed once validated.

Osmosis operates on a Proof of Stake (PoS) consensus mechanism, leveraging the Cosmos SDK and Tendermint Core to provide secure, decentralized, and scalable transaction processing.

Core Components:

- Proof of Stake (PoS): Validators are chosen based on the amount of OSMO tokens they stake or are delegated by other token holders. Validators are responsible for validating transactions, producing blocks, and maintaining network security.
- Cosmos SDK and Tendermint Core: Osmosis uses Tendermint Core for Byzantine Fault Tolerant (BFT) consensus, ensuring fast finality and resistance to attacks as long as less than one-third of validators are malicious.
- Decentralized Governance: OSMO token holders can participate in governance by voting on protocol upgrades and network parameters, fostering a community-driven approach to network development.

S.5 Incentive Mechanisms and Applicable Fees

Injective Token is present on the following networks: Binance Smart Chain, Cosmos, Ethereum, Injective, Osmosis.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

The Cosmos network incentivizes both validators and delegators to secure the network through staking rewards, funded by transaction fees and newly minted ATOM.

Incentive Mechanisms:

1. Staking Rewards for Validators and Delegators:

ATOM Rewards: Validators earn staking rewards in ATOM tokens for participating in consensus, with rewards shared with delegators who stake ATOM through delegation.

2. Slashing for Accountability:

Penalties for Misconduct: Validators who act maliciously, such as double-signing or staying offline, face slashing penalties, which remove a portion of their staked ATOM. Delegators may also experience slashing if their chosen validator is penalized, encouraging careful selection of trustworthy validators.

Applicable Fees:

1. Transaction Fees:

User-Paid Fees in ATOM: All transactions on the Cosmos Hub incur fees paid in ATOM, compensating validators for transaction processing and helping to prevent network spam.

2. Customizable Fee Model:

Custom Token Fees: Cosmos SDK allows individual chains to define their own transaction fees in tokens other than ATOM, supporting varied application requirements within the ecosystem.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

Injective incentivizes network participation through staking rewards and a unique transaction fee model that supports long-term value for INJ tokens.

Incentive Mechanisms:

Staking Rewards:

INJ holders earn rewards for staking their tokens, encouraging active participation in securing the network.

Validator Rewards:

Validators receive staking rewards and transaction fees for processing transactions and maintaining network security.

Applicable Fees:

Transaction Fees:

Users pay fees in INJ tokens for network transactions, including smart contract execution and trading.

Fee Structure:

A portion of transaction fees is burned via a weekly on-chain auction, reducing the overall supply of INJ tokens and supporting a deflationary tokenomics model.

Osmosis incentivizes validators, delegators, and liquidity providers through a combination of staking rewards, transaction fees, and liquidity incentives.

Incentive Mechanisms:

- Validator Rewards: Validators earn rewards from transaction fees and block rewards, distributed in OSMO tokens, for their role in securing the network and processing transactions. Delegators who stake their OSMO tokens with validators receive a share of these rewards.
- Liquidity Provider Rewards: Users providing liquidity to Osmosis pools earn swap fees and may receive additional incentives in the form of OSMO tokens to encourage liquidity provision.
- Superfluid Staking: Liquidity providers can participate in superfluid staking, staking a portion of their OSMO tokens within liquidity pools. This mechanism allows users to earn staking rewards while maintaining liquidity in the pools

Applicable Fees:

Transaction Fees: Users pay transaction fees in OSMO tokens for network activities, including swaps, staking, and governance participation. These fees are distributed to validators and delegators, incentivizing their continued participation and support for network security.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. Due to the structure of this network, it is not only the mainnet that is responsible for energy consumption. In order to calculate the structure adequately, a proportion of the energy consumption of the connected network, cosmos, must also be taken into account, because the connected network is also responsible for security. This proportion is determined on the basis of gas consumption. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

To determine the energy consumption of a token, the energy consumption of the network(s) binance_smart_chain, cosmos, ethereum, osmosis is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and

the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for KAVA

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	KAVA	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	236682.93600	kWh/a

Qualitative information

S.4 Consensus Mechanism

KAVA is present on the following networks: Ethereum, Kava, Osmosis, Polygon.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

Kava employs the Tendermint Core consensus engine with a Proof of Stake (PoS) model, ensuring security, scalability, and decentralized decision-making.

Core Components:

- Tendermint Core (PBFT): A Practical Byzantine Fault Tolerance-based consensus engine provides fast block finality and ensures consistent transaction validation.
- Proof of Stake (PoS): Validators are selected based on the amount of KAVA tokens staked, with the top 100 nodes by bonded stake responsible for validating blocks.
- Validator Selection and Accountability: A slashing mechanism penalizes validators for malicious actions like double-signing or extended downtime, encouraging honest and reliable participation.

Osmosis operates on a Proof of Stake (PoS) consensus mechanism, leveraging the Cosmos SDK and Tendermint Core to provide secure, decentralized, and scalable transaction processing.

Core Components:

- Proof of Stake (PoS): Validators are chosen based on the amount of OSMO tokens they stake or are delegated by other token holders. Validators are responsible for validating transactions, producing blocks, and maintaining network security.
- Cosmos SDK and Tendermint Core: Osmosis uses Tendermint Core for Byzantine Fault Tolerant (BFT) consensus, ensuring fast finality and resistance to attacks as long as less than one-third of validators are malicious.
- Decentralized Governance: OSMO token holders can participate in governance by voting on protocol upgrades and network parameters, fostering a community-driven approach to network development.

Polygon PoS is an EVM-compatible sidechain that operates with a Proof-of-Stake consensus mechanism and periodically submits checkpoints to the Ethereum mainnet. The network maintains its own validator set and processes transactions independently from Ethereum, while using Ethereum smart contracts for staking-related functions and checkpoint verification. Polygon PoS therefore uses Ethereum as a staking and checkpointing layer, but does not rely on Ethereum for full transaction execution or transaction data availability. The Polygon-side architecture consists of two primary node layers. The Bor layer is responsible for transaction execution and block production. The Heimdall layer is responsible for validator coordination, staking-related monitoring, consensus, and checkpoint finalisation. Heimdall is based on Cosmos SDK and CometBFT and aggregates blocks produced by Bor into periodic Merkle-root checkpoints that are submitted to smart contracts on the Ethereum mainnet. Validators participate in the network by staking POL tokens. Token holders may delegate POL tokens to validators, contributing to the validator's effective stake and participating indirectly in network validation. Following the Rio upgrade, Polygon PoS uses a Validator-Elected Block Producer model. Under this model, validators elect the block producer or block producers for a span, rather than relying on the previous stake-weighted selection model for multiple block producers over shorter intervals. Block production and transaction execution are performed on the Bor layer, while Heimdall validators coordinate consensus and checkpoint finalisation. At regular intervals, Heimdall validators aggregate blocks into a Merkle root and submit the resulting checkpoint to Ethereum smart contracts. These checkpoints provide an additional verification layer and support cross-chain verification, including in the context of asset transfers between Polygon PoS and Ethereum. This design enables higher transaction throughput and lower transaction costs than the Ethereum mainnet, while maintaining a technical connection to Ethereum through staking contracts and periodic checkpointing. Polygon PoS should therefore be understood as an independent sidechain or commit-chain architecture, rather than a rollup that inherits full execution and data availability security from Ethereum.

S.5 Incentive Mechanisms and Applicable Fees

KAVA is present on the following networks: Ethereum, Kava, Osmosis, Polygon.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

Kava incentivizes network security and active participation through rewards and an inflationary model, aligning stakeholders' interests.

Incentive Mechanisms:

Validator Rewards:

Validators earn rewards in KAVA tokens from block rewards and transaction fees, compensating them for securing the network and processing transactions.

Staking Rewards:

KAVA holders can delegate their tokens to validators to earn a share of rewards while participating in network governance.

Applicable Fees:

Transaction Fees:

Users pay fees in KAVA tokens for transactions, which are distributed among validators and delegators, supporting network maintenance.

Inflation Mechanism:

New KAVA tokens are minted to fund ecosystem initiatives like Kava Rise, which supports decentralization, security, and ecosystem stability.

Osmosis incentivizes validators, delegators, and liquidity providers through a combination of staking rewards, transaction fees, and liquidity incentives.

Incentive Mechanisms:

- Validator Rewards: Validators earn rewards from transaction fees and block rewards, distributed in OSMO tokens, for their role in securing the network and processing transactions. Delegators who stake their OSMO tokens with validators receive a share of these rewards.
- Liquidity Provider Rewards: Users providing liquidity to Osmosis pools earn swap fees and may receive additional incentives in the form of OSMO tokens to encourage liquidity provision.
- Superfluid Staking: Liquidity providers can participate in superfluid staking, staking a portion of their OSMO tokens within liquidity pools. This mechanism allows users to earn staking rewards while maintaining liquidity in the pools

Applicable Fees:

Transaction Fees: Users pay transaction fees in OSMO tokens for network activities, including swaps, staking, and governance participation. These fees are distributed to validators and delegators, incentivizing their continued participation and support for network security.

Polygon PoS uses economic incentives to support validator participation, transaction processing, and network operation. Validators stake POL tokens and participate in block production, validation, voting, and checkpoint finalisation. Validators may receive rewards connected to their participation in the network, including rewards linked to validation activities and transaction-fee allocation, depending on the applicable protocol rules. Token holders who do not operate validator infrastructure may delegate POL tokens to validators. Delegators may receive a share of rewards attributable to the validator to whom they delegate, subject to the validator's commission and applicable protocol rules. Delegation increases the validator's effective stake and may affect its role in the validator set and related network processes. Following the Rio upgrade, Polygon PoS introduced a Validator-Elected Block Producer model, under which validators elect the block producer or block producers for a span. Publicly described protocol changes associated with this model also provide for redistribution of fees, including maximum extractable value-related fees where applicable, to non-producing validators under the relevant protocol design. This changes the incentive structure from the previous model in which block production selection was more directly described by reference to stake-weighted producer selection. Polygon PoS includes protocol specifications for validator penalties, including slashing-related concepts. Transactions on Polygon PoS require payment of network fees in POL. Fees apply to ordinary token transfers, smart contract deployment, and smart contract interaction. The amount of fees may vary depending on network demand, transaction complexity, and computational resources required. Because Polygon PoS processes transactions independently from Ethereum, transaction fees are generally designed to be lower than equivalent activity on the Ethereum mainnet, although actual fees may change according to network conditions and protocol parameters.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum, osmosis, polygon is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all

implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.


SEI

SEI | XCDVP53WR

Quantitative information

Quantitative sustainability indicators for SEI

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	SEI	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	210305.17440	kWh/a

Qualitative information

S.4 Consensus Mechanism

SEI is present on the following networks: Osmosis, Sei.

Osmosis operates on a Proof of Stake (PoS) consensus mechanism, leveraging the Cosmos SDK and Tendermint Core to provide secure, decentralized, and scalable transaction processing.

Core Components:

- Proof of Stake (PoS): Validators are chosen based on the amount of OSMO tokens they stake or are delegated by other token holders. Validators are responsible for validating transactions, producing blocks, and maintaining network security.
- Cosmos SDK and Tendermint Core: Osmosis uses Tendermint Core for Byzantine Fault Tolerant (BFT) consensus, ensuring fast finality and resistance to attacks as long as less than one-third of validators are malicious.
- Decentralized Governance: OSMO token holders can participate in governance by voting on protocol upgrades and network parameters, fostering a community-driven approach to network development.

Sei leverages its Twin-Turbo consensus mechanism, integrating advanced transaction processing techniques with the reliability of Tendermint Core, to achieve high performance and security.

Core Components:

- Twin-Turbo Consensus:
 - Optimistic Block Processing: Validators process transactions optimistically, assuming their validity, reducing latency and increasing throughput.
 - Intelligent Block Propagation: Compressed block proposals containing transaction hashes enable validators to reconstruct blocks locally, expediting consensus.
 - Single Slot Finality: Ensures immediate block finality upon addition, eliminating the need for confirmations and minimizing the risk of chain reorganizations.
- Tendermint Core Integration:
 - Incorporates Byzantine Fault Tolerance (BFT) to maintain security and resilience, safeguarding the network against malicious actors.

S.5 Incentive Mechanisms and Applicable Fees

SEI is present on the following networks: Osmosis, Sei.

Osmosis incentivizes validators, delegators, and liquidity providers through a combination of staking rewards, transaction fees, and liquidity incentives.

Incentive Mechanisms:

- Validator Rewards: Validators earn rewards from transaction fees and block rewards, distributed in OSMO tokens, for their role in securing the network and processing transactions. Delegators who stake their OSMO tokens with validators receive a share of these rewards.
- Liquidity Provider Rewards: Users providing liquidity to Osmosis pools earn swap fees and may receive additional incentives in the form of OSMO tokens to encourage liquidity provision.
- Superfluid Staking: Liquidity providers can participate in superfluid staking, staking a portion of their OSMO tokens within liquidity pools. This mechanism allows users to earn staking rewards while maintaining liquidity in the pools

Applicable Fees:

Transaction Fees: Users pay transaction fees in OSMO tokens for network activities, including swaps, staking, and governance participation. These fees are distributed to validators and delegators, incentivizing their continued participation and support for network security.

The Sei Network incentivizes participation through staking rewards and a transparent fee structure, supporting its decentralized ecosystem.

Incentive Mechanisms:

- Staking Rewards: Validators and delegators earn SEI tokens as rewards for securing the network through staking, promoting active engagement and long-term commitment.
- Governance Participation: SEI token holders can participate in network governance decisions, influencing protocol upgrades and key changes.

Applicable Fees:

Transaction Fees: Users pay fees in SEI tokens for network transactions. These fees are distributed to validators and delegators as rewards, supporting network operations and security.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

To determine the energy consumption of a token, the energy consumption of the network(s) osmosis is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Cosmos ATOM

ATOM | 6C7F2WVZH

Quantitative information

Quantitative sustainability indicators for Cosmos ATOM

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Cosmos ATOM	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	186481.17745	kWh/a

Qualitative information

S.4 Consensus Mechanism

Cosmos ATOM is present on the following networks: Binance Smart Chain, Bitsong, Cosmos, Cronos, Ethereum, Injective, Osmosis.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 "Cabinet" validators and 24 "Candidate" validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

BitSong operates on a Delegated Proof-of-Stake (DPoS) consensus mechanism. In this model, BTSG token holders delegate their tokens to validators, who are responsible for producing and validating

new blocks. The selection of validators is based on the amount of BTSG tokens staked and the duration of staking, which determines their voting power in the network's governance processes.

The Cosmos network uses the Cosmos SDK, a modular framework that enables developers to build custom, application-specific blockchains. Cosmos SDK chains rely on Tendermint Core, a Byzantine Fault Tolerant (BFT) Proof of Stake (PoS) consensus engine that supports interoperability and fast transaction finality.

Core Components:

1. Tendermint BFT Consensus with Proof of Stake:

- Validator Selection: Cosmos validators are selected based on the amount of ATOM they stake or receive from delegators. These validators participate in block proposal and validation through a two-thirds majority voting system.
- Security Threshold: Tendermint BFT ensures network security as long as fewer than one-third of validators act maliciously.

2. Modular Cosmos SDK Framework:

- Inter-Blockchain Communication (IBC): The Cosmos SDK supports IBC, allowing seamless interoperability between Cosmos-based blockchains.
- Application Blockchain Interface (ABCI): This interface separates the consensus layer from the application layer, enabling developers to implement custom logic without modifying the consensus engine.

Cronos operates on a Proof of Stake (PoS) model integrated with Tendermint's Byzantine Fault Tolerant (BFT) consensus, designed for decentralization, security, and interoperability. This model enables validators to be selected based on staking power, rewarding them for securing and validating the network.

Core Components:

- Proof of Stake (PoS) with Tendermint BFT Validator Selection: Validators are chosen based on the amount of CRO tokens staked, securing the network and producing blocks.
- Delegation Model: Token holders can delegate their CRO to validators, enabling participation in network security without needing to run a validator node.
- Cosmos SDK and Inter-Blockchain Communication (IBC) Cross-Chain Connectivity: Built on the Cosmos SDK, Cronos enables cross-chain communication, connecting to other Cosmos blockchains and ecosystems such as Ethereum and Binance Smart Chain.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

Injective operates on a Tendermint-based Proof of Stake (PoS) consensus model, ensuring high throughput and immediate transaction finality.

Core Components:

- Tendermint-based Proof of Stake (PoS):
Ensures instant transaction finality and supports efficient block production for high-speed transactions.
- Validator Selection:
Validators are chosen based on the amount of INJ tokens staked, considering both self-staked and delegated tokens, to maintain a decentralized network.
- Delegation:
INJ holders can delegate their tokens to validators, earning a share of staking rewards while participating in network governance.
- Instant Finality:
The Tendermint consensus mechanism provides immediate finality, ensuring transactions cannot be reversed once validated.

Osmosis operates on a Proof of Stake (PoS) consensus mechanism, leveraging the Cosmos SDK and Tendermint Core to provide secure, decentralized, and scalable transaction processing.

Core Components:

- Proof of Stake (PoS): Validators are chosen based on the amount of OSMO tokens they stake or are delegated by other token holders. Validators are responsible for validating transactions, producing blocks, and maintaining network security.
- Cosmos SDK and Tendermint Core: Osmosis uses Tendermint Core for Byzantine Fault Tolerant (BFT) consensus, ensuring fast finality and resistance to attacks as long as less than one-third of validators are malicious.
- Decentralized Governance: OSMO token holders can participate in governance by voting on protocol upgrades and network parameters, fostering a community-driven approach to network development.

S.5 Incentive Mechanisms and Applicable Fees

Cosmos ATOM is present on the following networks: Binance Smart Chain, Bitsong, Cosmos, Cronos, Ethereum, Injective, Osmosis.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the

validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

The native token, BTSG, serves multiple roles within the BitSong ecosystem, including transaction fee payments, staking, and governance participation. Validators earn rewards from transaction fees and block rewards, with a portion of these rewards distributed to delegators after deducting the validator's commission.

The Cosmos network incentivizes both validators and delegators to secure the network through staking rewards, funded by transaction fees and newly minted ATOM.

Incentive Mechanisms:

1. Staking Rewards for Validators and Delegators:

ATOM Rewards: Validators earn staking rewards in ATOM tokens for participating in consensus, with rewards shared with delegators who stake ATOM through delegation.

2. Slashing for Accountability:

Penalties for Misconduct: Validators who act maliciously, such as double-signing or staying offline, face slashing penalties, which remove a portion of their staked ATOM. Delegators may also experience slashing if their chosen validator is penalized, encouraging careful selection of trustworthy validators.

Applicable Fees:

1. Transaction Fees:

User-Paid Fees in ATOM: All transactions on the Cosmos Hub incur fees paid in ATOM, compensating validators for transaction processing and helping to prevent network spam.

2. Customizable Fee Model:

Custom Token Fees: Cosmos SDK allows individual chains to define their own transaction fees in tokens other than ATOM, supporting varied application requirements within the ecosystem.

Cronos incentivizes validators and delegators with staking rewards and transaction fees, aligning economic incentives with network security and growth.

Incentive Mechanisms:

- Staking Rewards Validators and Delegators: Both groups earn CRO rewards for supporting network security. Delegators earn a portion of the validator rewards, promoting broader network participation.
- Deflationary Mechanism Token Burning: A portion of transaction fees and staking rewards may be periodically burned, reducing CRO supply over time and potentially increasing token value.

Applicable Fees:

- Transaction and Smart Contract Fees Standard Transactions: Users pay CRO for network transactions and dApp interactions, providing a steady income for validators.
- Ethereum-Compatible Gas Fees: Executing Ethereum-compatible smart contracts incurs gas fees, similar to Ethereum, payable in CRO.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

Injective incentivizes network participation through staking rewards and a unique transaction fee model that supports long-term value for INJ tokens.

Incentive Mechanisms:

Staking Rewards:

INJ holders earn rewards for staking their tokens, encouraging active participation in securing the network.

Validator Rewards:

Validators receive staking rewards and transaction fees for processing transactions and maintaining network security.

Applicable Fees:

Transaction Fees:

Users pay fees in INJ tokens for network transactions, including smart contract execution and trading.

Fee Structure:

A portion of transaction fees is burned via a weekly on-chain auction, reducing the overall supply of INJ tokens and supporting a deflationary tokenomics model.

Osmosis incentivizes validators, delegators, and liquidity providers through a combination of staking rewards, transaction fees, and liquidity incentives.

Incentive Mechanisms:

- Validator Rewards: Validators earn rewards from transaction fees and block rewards, distributed in OSMO tokens, for their role in securing the network and processing transactions. Delegators who stake their OSMO tokens with validators receive a share of these rewards.
- Liquidity Provider Rewards: Users providing liquidity to Osmosis pools earn swap fees and may receive additional incentives in the form of OSMO tokens to encourage liquidity provision.

- Superfluid Staking: Liquidity providers can participate in superfluid staking, staking a portion of their OSMO tokens within liquidity pools. This mechanism allows users to earn staking rewards while maintaining liquidity in the pools

Applicable Fees:

Transaction Fees: Users pay transaction fees in OSMO tokens for network activities, including swaps, staking, and governance participation. These fees are distributed to validators and delegators, incentivizing their continued participation and support for network security.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

To determine the energy consumption of a token, the energy consumption of the network(s) binance_smart_chain, bitsong, cosmos, cronos, ethereum, injective, osmosis is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Canton Coin

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Canton Coin	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	184222.80000	kWh/a

Qualitative information

S.4 Consensus Mechanism

The Canton Network uses a “proof-of-stakeholder” consensus model. Participants who are stakeholders in a given transaction validate that transaction, while a separate synchronization domain (sync domain) sequences transactions and ensures ordering through a Byzantine Fault Tolerant protocol in its decentralized mode.

S.5 Incentive Mechanisms and Applicable Fees

Fees paid in the network’s native token are burned, while new tokens are minted as rewards based on participants’ contribution to network utility. Rewards are allocated across infrastructure providers, application builders, and users in line with their roles and the value they bring to the network.

S.9 Energy consumption sources and methodologies

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital

Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Terra

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Terra	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	183960.00000	kWh/a

Qualitative information

S.4 Consensus Mechanism

Terra 2.0 is a Layer 1 blockchain developed with the Cosmos SDK and utilizes the Tendermint BFT (Byzantine Fault Tolerance) consensus protocol. This architecture allows Terra 2.0 to act as a standalone blockchain within the Cosmos ecosystem and benefit from Inter-Blockchain Communication (IBC) to enable seamless interactions with other blockchains.

The Tendermint BFT consensus protocol implemented in Terra 2.0 combines a classic Byzantine fault tolerance approach with a Delegated Proof-of-Stake (DPoS) system. Validators are selected by staking LUNA tokens and are responsible for validating transactions and creating new blocks.

S.5 Incentive Mechanisms and Applicable Fees

Terra 2.0, validators are incentivized through staking rewards, which are distributed to maintain the network's security and functionality. These rewards are derived from a combination of transaction fees (referred to as gas fees), seigniorage (if applicable), and other network-specific revenue sources.

Validators share these rewards with delegators, who stake their LUNA tokens by delegating them to validators.

Transaction fees in Terra 2.0 are paid in LUNA, the network's native token. These fees are calculated based on the computational resources required to process transactions, such as smart contract execution or token transfers.

The fee structure follows a 'base fee plus priority fee' model, where users can pay an additional fee to prioritize their transactions during periods of high network congestion. Fees serve two purposes: they prevent spam attacks by adding a cost to every transaction and provide financial rewards to validators for processing transactions.

S.9 Energy consumption sources and methodologies

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. Due to the structure of this network, it is not only the mainnet that is responsible for energy consumption. In order to calculate the structure adequately, a proportion of the energy consumption of the connected network, cosmos, must also be taken into account, because the connected network is also responsible for security. This proportion is determined on the basis of gas consumption. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.


Flare

FLR | DVRV6HSK5

Quantitative information

Quantitative sustainability indicators for Flare

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Flare	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	170820.00000	kWh/a

Qualitative information

S.4 Consensus Mechanism

The Flare Blockchain uses a unique consensus mechanism known as Avalanche Consensus combined with a Federated Byzantine Agreement (FBA) model to provide scalability, security, and decentralization. Flare aims to enable interoperability between blockchains by connecting smart contract platforms to non-Turing complete networks like Bitcoin, and this consensus mechanism plays a crucial role in the network's overall operation.

Key Features of Flare's Consensus Mechanism:

1. Avalanche Consensus:
 - Scalable and Fast: The Avalanche consensus is designed for high throughput and low latency. It uses a gossip protocol for communication between nodes, which helps achieve consensus faster than traditional consensus mechanisms like Proof-of-Work (PoW) or Proof-of-Stake (PoS). Nodes quickly confirm transaction validity by repeatedly querying other nodes, increasing network speed.
 - Decentralized and Secure: This consensus mechanism doesn't require heavy computational power like PoW, making it more energy-efficient while maintaining robust security.
2. Federated Byzantine Agreement (FBA):
 - Federated Nodes: FBA ensures that nodes within the Flare network reach a consensus without needing to rely on a central authority. The network uses a set of trusted "federated" nodes that help maintain consensus, allowing nodes outside the federated set to participate without requiring full trust.

- Leaderless Consensus: FBA allows for a leaderless and decentralized structure, where each node can validate transactions independently, enhancing both security and decentralization.
- 3. Interoperability: Flare's consensus mechanism is designed to allow cross-chain communication, particularly bridging the gap between Turing-complete smart contract platforms like Ethereum and non-Turing-complete chains like Bitcoin. This makes it possible to bring data and value from non-smart contract chains into the smart contract ecosystem.

S.5 Incentive Mechanisms and Applicable Fees

Flare Network employs a multifaceted incentive mechanism to promote active participation and ensure the network's security and efficiency.

Incentive Mechanisms:

1. FTSO Delegation Rewards: Flare Time Series Oracle (FTSO) data providers offer price feeds to the network. Users can delegate their FLR tokens to these providers, earning a share of the rewards based on the accuracy of the data provided.
2. FlareDrops: A portion of FLR tokens is distributed monthly to WFLR holders through FlareDrops. This incentivizes users to hold and utilize WFLR tokens within the ecosystem.
3. rFLR Rewards: Reward FLR (rFLR) tokens are distributed monthly to enhance liquidity in Flare's DeFi ecosystem. Users can earn rFLR by participating in various DeFi activities, such as lending or borrowing assets.
4. FLR Protocol Emissions: Selected decentralized applications (dApps) launching on Flare receive FLR emissions to incentivize user participation and liquidity provision.

Applicable Fees:

1. Transaction Fees: Users pay FLR tokens to execute transactions on the network, compensating validators for processing and confirming transactions.
2. Staking Fees: When delegating FLR tokens to FTSO data providers or participating in staking activities, users may incur fees associated with these services.

S.9 Energy consumption sources and methodologies

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Nillion

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Nillion	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	170294.40000	kWh/a

Qualitative information

S.4 Consensus Mechanism

Nillion introduces a fundamentally different architecture compared to traditional blockchains by eliminating the need for consensus-based validation of every transaction. Instead of using mechanisms like Proof of Work or Proof of Stake, Nillion employs cryptographic frameworks such as Secure Multi-Party Computation (MPC) and Homomorphic Encryption to distribute and process data.

S.5 Incentive Mechanisms and Applicable Fees

The Nillion network uses its native utility token, NIL, to incentivize and sustain participation across various layers of the system. Users pay with NIL tokens for services such as private computation and data storage, ensuring access to the network's privacy-enhancing capabilities. Participants who contribute to the network's operations—such as node operators—can stake NIL tokens to support network security and performance, receiving staking rewards proportional to their contribution.

S.9 Energy consumption sources and methodologies

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The

energy consumption of the hardware devices was measured in certified test laboratories. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Autonomys Network

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Autonomys Network	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	144540.00000	kWh/a

Qualitative information

S.4 Consensus Mechanism

Autonomys uses Proof-of-Archival-Storage (PoAS) as the consensus mechanism of its consensus chain. Farmers allocate storage space to maintain pieces of the blockchain's archived history and participate in block production by responding to cryptographic storage challenges.

S.5 Incentive Mechanisms and Applicable Fees

The native AI3 token is used for network fees, rewards, and staking within execution domains. Farmers receive storage-related fees and protocol rewards for storing blockchain history and participating in consensus, while domain operators and their nominators receive compute fees for executing and validating transactions.

S.9 Energy consumption sources and methodologies

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital

Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Terra Classic

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Terra Classic	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	131400.00000	kWh/a

Qualitative information

S.4 Consensus Mechanism

Terra blockchain operates on a Delegated Proof of Stake (DPoS) consensus mechanism, which ensures fast, scalable, and secure transaction processing.

Core Components:

- Delegated Proof of Stake (DPoS):
 - Validators: A limited set of validators are responsible for validating transactions, proposing blocks, and securing the network. Validators are selected based on the amount of LUNA tokens staked, either directly or delegated by token holders.
 - Delegation: LUNA holders can delegate their tokens to validators, allowing them to participate in staking rewards without running their own validator nodes.
 - Rotational Leadership: Validators are selected in a round-robin manner to propose new blocks, ensuring fairness and efficiency in block production.
- Tendermint BFT (Byzantine Fault Tolerance):
 - Terra integrates the Tendermint Core consensus engine, providing fast block finality and resilience against up to one-third of malicious or faulty validators.
 - Finality: Transactions are confirmed once a block is added, reducing the risk of chain reorganizations and ensuring immediate finality.
 - Governance Integration: LUNA token holders participate in governance by voting on proposals related to protocol upgrades, parameter changes, and community decisions, aligning stakeholder incentives with network health.

S.5 Incentive Mechanisms and Applicable Fees

The Terra blockchain's incentive structure is designed to reward network participants, ensure security, and sustain ecosystem growth, while its fee model aligns with its focus on scalability and cost-efficiency.

Incentive Mechanisms:

- Validators: Validators earn staking rewards for their role in securing the network and validating transactions. Rewards are distributed in LUNA tokens, derived from transaction fees and seigniorage revenue.
- Delegators: LUNA holders who delegate their tokens to validators receive a share of staking rewards, proportional to the amount delegated, incentivizing broad participation.
- Seigniorage Rewards: Validators and delegators benefit from seigniorage revenue, generated when new stablecoins (e.g., TerraUSD) are minted. A portion of this revenue is allocated to reward LUNA stakers.
- Stability Incentives: LUNA token holders are incentivized to stake and participate in governance to maintain the stability of Terra's ecosystem and its algorithmic stablecoins.
- Governance Participation Rewards: Validators and delegators have governance voting rights, enabling them to shape the network's future. Participation in governance aligns incentives with long-term ecosystem health.

Applicable Fees:

- Transaction Fees: Users pay fees in LUNA or stablecoins for transactions such as fund transfers, smart contract execution, and staking. These fees are distributed among validators and delegators, providing additional incentives for network security and functionality.
- Dynamic Fee Model: Transaction fees are dynamically adjusted based on network congestion and transaction size. This ensures efficient resource allocation while keeping fees affordable for users.
- Seigniorage Fee: A portion of revenue from stablecoin minting is directed to the treasury and distributed to stakers, reinforcing network participation and development.
- Burning Mechanism: A portion of fees and seigniorage revenue may be burned, reducing LUNA supply over time and contributing to its deflationary tokenomics.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) terra_classic is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for ICON

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	ICON	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	115106.40000	kWh/a

Qualitative information

S.4 Consensus Mechanism

The ICON blockchain operates on a Delegated Proof of Contribution (DPoC) consensus mechanism, an innovative approach designed to reward network participants based on their contributions while ensuring robust decentralization and scalability.

Core Components:

- Delegated Proof of Contribution (DPoC):
DPoC extends beyond traditional Delegated Proof of Stake (DPoS) by factoring in each participant's contributions to the ecosystem, such as governance participation, network development, or community engagement. Validators, called Public Representatives (P-Reps), are elected by token holders based on their stake and perceived contributions to the network.
- P-Rep Election and Roles:
P-Reps validate transactions, produce blocks, and maintain the network's integrity. The top-ranked P-Reps participate actively in governance decisions, while sub-P-Reps serve as backup nodes, ensuring redundancy and decentralization.
- Scalability via Loop Fault Tolerance (LFT):
ICON employs LFT, an advanced Byzantine Fault Tolerance (BFT) algorithm, to enhance consensus speed and reduce latency while maintaining high fault tolerance.

S.5 Incentive Mechanisms and Applicable Fees

The ICON blockchain incentivizes network participants through a well-structured reward system and applies a straightforward fee model to support network operations and encourage ecosystem growth.

Incentive Mechanism:

- P-Rep Rewards: Public Representatives (P-Reps) earn rewards in ICX tokens for validating transactions, producing blocks, and maintaining the network. Rewards are distributed based on the rank and contribution of each P-Rep, incentivizing high performance and active participation.
- Delegator Rewards: ICON token holders who delegate their ICX tokens to P-Reps earn staking rewards proportional to their stake. This delegation model encourages broader participation and enhances network security by increasing staked ICX.
- Contribution Proposal System (CPS): CPS rewards community developers and projects that contribute to ICON's ecosystem. Approved proposals receive funding in ICX, promoting continuous network development.

Applicable Fees:

- Transaction Fees: Users pay fees in ICX tokens for transactions, such as transfers, smart contract executions, and interactions with decentralized applications (dApps). Fees are dynamically adjusted based on network activity to balance affordability and resource usage.
- Governance-Driven Allocation: A portion of transaction fees is redistributed to P-Reps and delegators, aligning incentives with network activity and maintaining security.
- Fee Sharing: ICON's fee-sharing model supports dApp developers by redistributing part of the fees generated by their applications, fostering innovation and adoption within the ecosystem.

S.9 Energy consumption sources and methodologies

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Neutron

NTRN | MB670B1M8

Quantitative information

Quantitative sustainability indicators for Neutron

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Neutron	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	113135.40000	kWh/a

Qualitative information

S.4 Consensus Mechanism

Neutron is a Cosmos-based blockchain that operates as a consumer chain under the Interchain Security model. It relies on the Cosmos Hub validator set for consensus and finality, without running its own validators.

S.5 Incentive Mechanisms and Applicable Fees

Transaction fees on Neutron are paid in NTRN and support validator rewards via the Cosmos Hub. NTRN is also used for governance within the Neutron network, allowing token holders to participate in protocol decisions.

S.9 Energy consumption sources and methodologies

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we

update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.


Cronos

CRO | GWM30MLW3

Quantitative information

Quantitative sustainability indicators for Cronos

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Cronos	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	109462.09938	kWh/a

Qualitative information

S.4 Consensus Mechanism

Cronos is present on the following networks: Cosmos, Cronos, Cronos Pos, Ethereum, Osmosis, Solana.

The Cosmos network uses the Cosmos SDK, a modular framework that enables developers to build custom, application-specific blockchains. Cosmos SDK chains rely on Tendermint Core, a Byzantine Fault Tolerant (BFT) Proof of Stake (PoS) consensus engine that supports interoperability and fast transaction finality.

Core Components:

1. Tendermint BFT Consensus with Proof of Stake:
 - Validator Selection: Cosmos validators are selected based on the amount of ATOM they stake or receive from delegators. These validators participate in block proposal and validation through a two-thirds majority voting system.
 - Security Threshold: Tendermint BFT ensures network security as long as fewer than one-third of validators act maliciously.
2. Modular Cosmos SDK Framework:
 - Inter-Blockchain Communication (IBC): The Cosmos SDK supports IBC, allowing seamless interoperability between Cosmos-based blockchains.

- Application Blockchain Interface (ABCI): This interface separates the consensus layer from the application layer, enabling developers to implement custom logic without modifying the consensus engine.

Cronos operates on a Proof of Stake (PoS) model integrated with Tendermint's Byzantine Fault Tolerant (BFT) consensus, designed for decentralization, security, and interoperability. This model enables validators to be selected based on staking power, rewarding them for securing and validating the network.

Core Components:

- Proof of Stake (PoS) with Tendermint BFT Validator Selection: Validators are chosen based on the amount of CRO tokens staked, securing the network and producing blocks.
- Delegation Model: Token holders can delegate their CRO to validators, enabling participation in network security without needing to run a validator node.
- Cosmos SDK and Inter-Blockchain Communication (IBC) Cross-Chain Connectivity: Built on the Cosmos SDK, Cronos enables cross-chain communication, connecting to other Cosmos blockchains and ecosystems such as Ethereum and Binance Smart Chain.

The Cronos POS Chain operates as a Layer-0 blockchain within the Cosmos ecosystem, utilizing the Tendermint Byzantine Fault Tolerant (BFT) consensus engine. It employs a Delegated Proof-of-Stake (DPoS) model, where the top 100 validators by total staked CRO tokens form the active set responsible for block production and network security.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

Osmosis operates on a Proof of Stake (PoS) consensus mechanism, leveraging the Cosmos SDK and Tendermint Core to provide secure, decentralized, and scalable transaction processing.

Core Components:

- Proof of Stake (PoS): Validators are chosen based on the amount of OSMO tokens they stake or are delegated by other token holders. Validators are responsible for validating transactions, producing blocks, and maintaining network security.
- Cosmos SDK and Tendermint Core: Osmosis uses Tendermint Core for Byzantine Fault Tolerant (BFT) consensus, ensuring fast finality and resistance to attacks as long as less than one-third of validators are malicious.
- Decentralized Governance: OSMO token holders can participate in governance by voting on protocol upgrades and network parameters, fostering a community-driven approach to network development.

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.

- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Cronos is present on the following networks: Cosmos, Cronos, Cronos Pos, Ethereum, Osmosis, Solana.

The Cosmos network incentivizes both validators and delegators to secure the network through staking rewards, funded by transaction fees and newly minted ATOM.

Incentive Mechanisms:

1. Staking Rewards for Validators and Delegators:

ATOM Rewards: Validators earn staking rewards in ATOM tokens for participating in consensus, with rewards shared with delegators who stake ATOM through delegation.

2. Slashing for Accountability:

Penalties for Misconduct: Validators who act maliciously, such as double-signing or staying offline, face slashing penalties, which remove a portion of their staked ATOM. Delegators may also experience slashing if their chosen validator is penalized, encouraging careful selection of trustworthy validators.

Applicable Fees:

1. Transaction Fees:

User-Paid Fees in ATOM: All transactions on the Cosmos Hub incur fees paid in ATOM, compensating validators for transaction processing and helping to prevent network spam.

2. Customizable Fee Model:

Custom Token Fees: Cosmos SDK allows individual chains to define their own transaction fees in tokens other than ATOM, supporting varied application requirements within the ecosystem.

Cronos incentivizes validators and delegators with staking rewards and transaction fees, aligning economic incentives with network security and growth.

Incentive Mechanisms:

- Staking Rewards Validators and Delegators: Both groups earn CRO rewards for supporting network security. Delegators earn a portion of the validator rewards, promoting broader network participation.
- Deflationary Mechanism Token Burning: A portion of transaction fees and staking rewards may be periodically burned, reducing CRO supply over time and potentially increasing token value.

Applicable Fees:

- Transaction and Smart Contract Fees Standard Transactions: Users pay CRO for network transactions and dApp interactions, providing a steady income for validators.
- Ethereum-Compatible Gas Fees: Executing Ethereum-compatible smart contracts incurs gas fees, similar to Ethereum, payable in CRO.

The Cronos POS Chain uses its native CRO token to coordinate economic incentives and governance. Validators are rewarded for producing and validating blocks through a combination of inflationary block rewards and transaction fees. Transaction fees, also paid in CRO, are distributed between validators and a community pool.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

Osmosis incentivizes validators, delegators, and liquidity providers through a combination of staking rewards, transaction fees, and liquidity incentives.

Incentive Mechanisms:

- Validator Rewards: Validators earn rewards from transaction fees and block rewards, distributed in OSMO tokens, for their role in securing the network and processing transactions. Delegators who stake their OSMO tokens with validators receive a share of these rewards.
- Liquidity Provider Rewards: Users providing liquidity to Osmosis pools earn swap fees and may receive additional incentives in the form of OSMO tokens to encourage liquidity provision.
- Superfluid Staking: Liquidity providers can participate in superfluid staking, staking a portion of their OSMO tokens within liquidity pools. This mechanism allows users to earn staking rewards while maintaining liquidity in the pools

Applicable Fees:

Transaction Fees: Users pay transaction fees in OSMO tokens for network activities, including swaps, staking, and governance participation. These fees are distributed to validators and delegators, incentivizing their continued participation and support for network security.

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.
- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.

2. Delegators:

- Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.

3. Economic Security:

- Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
- Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties. Fees Applicable on the Solana Blockchain

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.

2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.

3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.

4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. Due to the structure of this network, it is not only the mainnet that is responsible for energy consumption. In order to calculate the structure adequately, a proportion of the energy consumption of the connected network, cosmos, must also be taken into account, because the connected network is also responsible for security. This proportion is determined on the basis of gas consumption. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

To determine the energy consumption of a token, the energy consumption of the network(s) cosmos, cronos_pos, ethereum, osmosis, solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Aleo

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Aleo	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	107748.00000	kWh/a

Qualitative information

S.4 Consensus Mechanism

Aleo employs a consensus design called AleoBFT, which combines a Byzantine Fault Tolerant protocol with a custom puzzle mechanism called “Proof-of-Succinct Work” (PoSW). Provers generate zero-knowledge proofs and solve puzzles; validators then verify these proofs, coordinate via AleoBFT, and finalize blocks.

S.5 Incentive Mechanisms and Applicable Fees

Users pay fees in Aleo’s native credits to submit transactions and obtain compute resources. Validators and provers are rewarded from block issuance and the fee pool. Holders can stake credits to secure the network and share in rewards, and part of the system’s design includes managing supply via fee mechanisms.

S.9 Energy consumption sources and methodologies

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. When

calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



XDC Network

XDC | 2DHMJ018G

Quantitative information

Quantitative sustainability indicators for XDC Network

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	XDC Network	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	105120.14181	kWh/a

Qualitative information

S.4 Consensus Mechanism

XDC Network is present on the following networks: Ethereum, Xdc Network.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

XinFin Network operates on a modified Delegated Proof of Stake (XDPoS) model, XDPoS 2.0, which ensures scalability, security, and efficiency suitable for enterprise applications.

Core Components:

1. XDPoS 2.0 (Delegated Proof of Stake):

Masternode System: Validators, known as masternodes, are required to stake XDC tokens to participate in transaction validation and block production. Validators are selected based on both stake size and community votes, ensuring only reliable nodes secure the network.

2. Double Validation Feature:

- Enhanced Security: Each transaction is validated by two independent validators before it's finalized, reducing the risk of double-spending or malicious behavior and increasing network reliability.
- Randomized Validator Rotation: Validators are selected in a rotating and randomized manner, preventing any single validator from consistently producing blocks, which enhances decentralization and security.

S.5 Incentive Mechanisms and Applicable Fees

XDC Network is present on the following networks: Ethereum, Xdc Network.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

XinFin incentivizes both validators and token holders to actively participate in network security and stability through staking and fee distribution mechanisms.

Incentive Mechanisms:

1. Staking Rewards:

- Validator Rewards: Validators earn XDC token rewards for validating transactions and maintaining network security.
- Delegator Rewards: XDC holders who delegate their tokens to validators receive a share of staking rewards, promoting community participation without requiring users to operate nodes.

2. Delegation Model:

Passive Income: XDC holders can delegate tokens to validators, enabling them to earn rewards passively and boosting network security through broader staking participation.

Applicable Fees:

- Fee Distribution: All transactions incur XDC fees, which are distributed to validators as additional rewards for their role in securing the network.
- Predictable Fees for Enterprises: Transaction fees are kept low and predictable, supporting XinFin's focus on enterprise use cases in finance, trade, and cross-border payments.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Polygon POL

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Polygon POL	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	96364.05040	kWh/a

Qualitative information

S.4 Consensus Mechanism

Polygon POL is present on the following networks: Ethereum, Polygon.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

Polygon PoS is an EVM-compatible sidechain that operates with a Proof-of-Stake consensus mechanism and periodically submits checkpoints to the Ethereum mainnet. The network maintains its own validator set and processes transactions independently from Ethereum, while using Ethereum smart contracts for staking-related functions and checkpoint verification. Polygon PoS therefore uses Ethereum as a staking and checkpointing layer, but does not rely on Ethereum for full

transaction execution or transaction data availability. The Polygon-side architecture consists of two primary node layers. The Bor layer is responsible for transaction execution and block production. The Heimdall layer is responsible for validator coordination, staking-related monitoring, consensus, and checkpoint finalisation. Heimdall is based on Cosmos SDK and CometBFT and aggregates blocks produced by Bor into periodic Merkle-root checkpoints that are submitted to smart contracts on the Ethereum mainnet. Validators participate in the network by staking POL tokens. Token holders may delegate POL tokens to validators, contributing to the validator's effective stake and participating indirectly in network validation. Following the Rio upgrade, Polygon PoS uses a Validator-Elected Block Producer model. Under this model, validators elect the block producer or block producers for a span, rather than relying on the previous stake-weighted selection model for multiple block producers over shorter intervals. Block production and transaction execution are performed on the Bor layer, while Heimdall validators coordinate consensus and checkpoint finalisation. At regular intervals, Heimdall validators aggregate blocks into a Merkle root and submit the resulting checkpoint to Ethereum smart contracts. These checkpoints provide an additional verification layer and support cross-chain verification, including in the context of asset transfers between Polygon PoS and Ethereum. This design enables higher transaction throughput and lower transaction costs than the Ethereum mainnet, while maintaining a technical connection to Ethereum through staking contracts and periodic checkpointing. Polygon PoS should therefore be understood as an independent sidechain or commit-chain architecture, rather than a rollup that inherits full execution and data availability security from Ethereum.

S.5 Incentive Mechanisms and Applicable Fees

Polygon POL is present on the following networks: Ethereum, Polygon.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

Polygon PoS uses economic incentives to support validator participation, transaction processing, and network operation. Validators stake POL tokens and participate in block production, validation, voting, and checkpoint finalisation. Validators may receive rewards connected to their participation in the network, including rewards linked to validation activities and transaction-fee allocation, depending on the applicable protocol rules. Token holders who do not operate validator infrastructure may delegate POL tokens to validators. Delegators may receive a share of rewards attributable to the validator to whom they delegate, subject to the validator's commission and applicable protocol rules. Delegation increases the validator's effective stake and may affect its role in the validator set and related network processes. Following the Rio upgrade, Polygon PoS introduced a Validator-Elected Block Producer model, under which validators elect the block producer or block producers for a span. Publicly described protocol changes associated with this model also provide for redistribution of fees, including maximum extractable value-related fees where applicable, to non-producing validators under the relevant protocol design. This changes the incentive structure

from the previous model in which block production selection was more directly described by reference to stake-weighted producer selection. Polygon PoS includes protocol specifications for validator penalties, including slashing-related concepts. Transactions on Polygon PoS require payment of network fees in POL. Fees apply to ordinary token transfers, smart contract deployment, and smart contract interaction. The amount of fees may vary depending on network demand, transaction complexity, and computational resources required. Because Polygon PoS processes transactions independently from Ethereum, transaction fees are generally designed to be lower than equivalent activity on the Ethereum mainnet, although actual fees may change according to network conditions and protocol parameters.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. Due to the structure of this network, it is not only the mainnet that is responsible for energy consumption. In order to calculate the structure adequately, a proportion of the energy consumption of the connected network, ethereum, must also be taken into account, because the connected network is also responsible for security. This proportion is determined on the basis of gas consumption. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Qtum

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Qtum	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	91191.60000	kWh/a

Qualitative information

S.4 Consensus Mechanism

Qtum combines the security of Bitcoin's Unspent Transaction Output (UTXO) model with Ethereum-style smart contracts, using a Proof of Stake (PoS) consensus mechanism. This innovative hybrid approach supports decentralized applications (dApps) while ensuring secure and efficient transaction validation.

Core Components:

- Proof of Stake (PoS): Qtum operates on a PoS consensus, enabling QTUM token holders to participate in block validation based on the number of tokens they stake. There is no minimum staking requirement, so all QTUM holders are eligible to participate in staking and earn rewards, promoting accessibility and decentralization.
- Hybrid UTXO and Smart Contract Structure UTXO Model: Qtum retains Bitcoin's UTXO model, which enhances transaction security by providing discrete transaction outputs.
- Ethereum-Compatible Smart Contracts: Qtum integrates Ethereum's smart contract capabilities, allowing for the creation and execution of decentralized applications.
- Account Abstraction Layer (AAL): The AAL serves as a bridge between the UTXO model and Ethereum-style smart contracts, enabling smart contracts to operate on top of the UTXO structure. This layer makes Qtum compatible with existing Ethereum smart contracts, allowing developers to deploy Ethereum dApps on Qtum's blockchain while benefiting from UTXO's security. Qtum's consensus mechanism supports a hybrid blockchain architecture that provides enhanced security, flexibility for dApps, and accessibility for a wide range of users.

S.5 Incentive Mechanisms and Applicable Fees

Qtum incentivizes stakers to secure the network by rewarding them with both block rewards and transaction fees. This structure supports decentralized participation and promotes consistent network performance.

Incentive Mechanisms:

- Staking Rewards Block Rewards: Validators (stakers) are rewarded with QTUM tokens for producing new blocks, incentivizing them to maintain the security and stability of the network.
- Transaction Fees: Stakers also earn transaction fees from transactions within the blocks they validate. This dual-reward model aligns validator incentives with overall network activity and performance.
- Accessibility of Staking No Minimum Staking Requirement: Unlike many PoS blockchains, Qtum allows staking with any amount of QTUM, making staking accessible to a wide range of users, from small holders to larger stakeholders. This open approach promotes decentralization and broader community participation.
- Smart Contract Fees Gas-Like Fee Structure: Qtum charges fees for executing smart contracts, similar to Ethereum's gas model. These fees are paid in QTUM and contribute to staking rewards, incentivizing validators to support dApps and smart contract functionality on the network.

Applicable Fees: Transaction Fees Users pay transaction fees in QTUM for transferring funds and interacting with smart contracts. These fees are essential for network operations and are distributed to stakers, enhancing their reward structure. Smart Contract Execution Fees The gas-like fees applied to smart contract execution incentivize support for dApps on the network and provide an additional revenue stream for stakers, further aligning their participation with network growth.

S.9 Energy consumption sources and methodologies

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



BSquared Network

B2 | 1R9JFC50Z

Quantitative information

Quantitative sustainability indicators for BSquared Network

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	BSquared Network	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	90318.70551	kWh/a

Qualitative information

S.4 Consensus Mechanism

BSquared Network is present on the following networks: B2 Network, Binance Smart Chain.

The consensus mechanism of the B² Network is based on a zk-rollup model. Transactions are executed off-chain, aggregated and a zk-proof is generated by B² Network's B² Rollup afterwards transactions are stored and the proof is verified by B² Network's B² Hub before the proof is stored to the Bitcoin blockchain via Taproot commitments. Sequencing, transaction storage and coordination of transactions are carried out by a network of B² nodes which use a Proof of Stake consensus to coordinate. This design is intended to provide scalability and efficiency, while ultimate security is derived from Bitcoin finality.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 "Cabinet" validators and 24 "Candidate" validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower

probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

S.5 Incentive Mechanisms and Applicable Fees

BSquared Network is present on the following networks: B2 Network, Binance Smart Chain.

The B² Network employs a fee and incentive structure designed to sustain network operations and participation. Transaction fees within the rollup environment are paid in bridged BTC, which serves as the native gas asset. These fees are shared between the network and integrated protocols, such as bridges and decentralized applications. They also finance transaction costs for storing commitments on Bitcoin. The network also supports fraud proofs to challenge possibly fraudulent/faulty withdrawals of tokens from the networks. Such Fraud proofs typically involve economic incentives for the parties challenging each other. In addition the proof of stake component (paid in B2) of the network incentivizes validators by giving them the ability to earn staking rewards and the risk of losing part of their stake for failing in their responsibilities.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) `b2_network`, `binance_smart_chain` is calculated first. For the energy consumption of the token, a

fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Binance Coin

BNB | 8N2VXJKB1

Quantitative information

Quantitative sustainability indicators for Binance Coin

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Binance Coin	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	90228.00000	kWh/a

Qualitative information

S.4 Consensus Mechanism

Binance Coin is present on the following networks: Binance Smart Chain, Opbnb.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

S.5 Incentive Mechanisms and Applicable Fees

Binance Coin is present on the following networks: Binance Smart Chain, Opbnb.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. When

calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Casper

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Casper	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	85935.60000	kWh/a

Qualitative information

S.4 Consensus Mechanism

Casper employs a unique Proof of Stake (PoS) consensus protocol known as the Highway Protocol, which enhances security, flexibility, and finality.

Core Components:

1. Highway Protocol (PoS):

The Highway protocol allows validators to reach consensus on blocks at varying levels of confidence, providing adaptable finality options based on security needs. This flexibility enables the network to accommodate different transaction requirements and ensure robust security.

2. Validator Selection and Continuous Validation:

- Selection Based on Staked CSPR: Validators are chosen based on the amount of CSPR tokens they stake. The higher the stake, the greater the chance of being selected to validate blocks.
- Continuous Block Finalization: Unlike traditional PoS networks with fixed epochs, Casper's Highway protocol allows for continuous block finalization, increasing network efficiency and reducing wait times for transactions.

3. Fork Choice Rule:

Casper uses the Greedy Heaviest Observed Subtree (GHOST) rule to select the main chain. This rule prioritizes the chain with the most cumulative stake, minimizing forks and improving chain stability.

S.5 Incentive Mechanisms and Applicable Fees

Casper's incentive model supports validator and delegator participation through staking rewards, transaction fees, and a controlled inflation model to maintain network security and economic sustainability.

Incentive Mechanisms:

1. Staking Rewards for Validators:

CSPR Rewards for Validation: Validators earn CSPR token rewards for staking and actively participating in block validation. This financial incentive encourages validators to contribute to network security and reliability.

2. Transaction Fees:

Fee Compensation for Validators: Users pay transaction fees in CSPR, which are distributed to validators. These fees provide additional compensation to validators, incentivizing efficient transaction processing.

3. Delegation Rewards for CSPR Holders:

Broadening Participation through Delegation: CSPR holders who prefer not to run validator nodes can delegate their tokens to validators, earning a share of staking rewards. This broadens network participation and supports decentralized security.

4. Adaptive Inflation Model:

Dynamic Adjustment of Token Supply: Casper's inflation model adjusts staking rewards based on the total network stake. This adaptive approach helps balance token rewards with the network's security needs, ensuring long-term economic sustainability.

5. Slashing Mechanism for Misbehavior:

Penalties for Dishonesty: Validators who act dishonestly or fail to meet performance standards risk losing a portion of their staked CSPR. This slashing mechanism discourages misbehavior and ensures network reliability.

Applicable Fees:

Transaction Fees in CSPR: Fees are paid in CSPR and distributed to validators, supporting their role in network maintenance and stability.

S.9 Energy consumption sources and methodologies

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Sonic

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Sonic	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	84358.80000	kWh/a

Qualitative information

S.4 Consensus Mechanism

Sonic utilizes a Proof-of-Stake (PoS) consensus mechanism integrated with a Directed Acyclic Graph (DAG) architecture to enhance scalability and efficiency. Validators are required to stake the network's native \$S tokens, with a minimum of 500,000 \$S tokens needed to operate a validator node. This substantial staking requirement ensures that validators have a significant investment in the network's integrity.

S.5 Incentive Mechanisms and Applicable Fees

Sonic's economic model is designed to incentivize active participation from both validators and developers. Validators earn rewards through a combination of block rewards and transaction fees. The block reward system employs a dynamic Annual Percentage Rate (APR) mechanism.

S.9 Energy consumption sources and methodologies

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. When

calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Hedera HBAR

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Hedera HBAR	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	82125.00000	kWh/a

Qualitative information

S.4 Consensus Mechanism

Hedera Hashgraph operates on a unique Hashgraph consensus algorithm, a directed acyclic graph (DAG) system that diverges from traditional blockchain technology. It uses Asynchronous Byzantine Fault Tolerance (aBFT) to secure the network.

Core Components:

1. Hashgraph Consensus and aBFT:

Hedera Hashgraph's consensus mechanism achieves aBFT, which allows the network to tolerate malicious nodes without compromising security, ensuring high levels of fault tolerance and stability.

2. Gossip about Gossip Protocol:

The network employs a "Gossip about Gossip" protocol, where nodes share transaction information along with details of previous gossip events. This process allows each node to rapidly learn the entire network state, enhancing communication efficiency and minimizing latency.

3. Virtual Voting:

Hedera does not rely on traditional miners or stakers. Instead, it uses virtual voting, where nodes reach consensus by analyzing the gossip history and simulating votes based on the order and frequency of transactions received. Virtual voting eliminates the need for actual voting messages, reducing network congestion and speeding up consensus.

4. Deterministic Finality:

Once consensus is reached, transactions achieve deterministic finality instantly, making them irreversible and confirmed within seconds. This attribute is ideal for applications needing quick and irreversible transaction confirmations.

5. Staking for Network Security:

Hedera incorporates staking to bolster network security. HBAR holders can stake their tokens to support validator nodes, contributing to the network's resilience and encouraging long-term engagement in consensus operations.

S.5 Incentive Mechanisms and Applicable Fees

Hedera Hashgraph incentivizes network participation through transaction fees and staking rewards, with a structured and predictable fee model designed for enterprise use.

Incentive Mechanisms:

1. Staking Rewards for Nodes:

- HBAR Rewards for Node Operators: Node operators earn HBAR rewards for providing network security and processing transactions, incentivizing them to act honestly and support network stability.
- User Staking: HBAR holders can stake their tokens to support nodes. Staking rewards offer an additional incentive for token holders to engage in network operations, although the structure may evolve with network growth.

2. Service-Based Node Rewards:

Nodes receive rewards based on specific services they provide to the network, such as:

- Consensus Services: Reaching consensus and maintaining transaction order.
- File Storage: Storing data on the Hedera network.
- Smart Contract Processing: Supporting contract executions for decentralized applications.

Applicable Fees:

1. Predictable Transaction Fees: Hedera's fee structure is fixed and predictable, ensuring transparent costs for users and appealing to enterprise-grade applications. Transaction fees are paid in HBAR and are designed to be stable, making it easier for businesses to plan for usage costs.
2. Fee Allocation: All transaction fees collected in HBAR are distributed to network nodes as rewards, reinforcing their role in maintaining network integrity and processing transactions efficiently.

S.9 Energy consumption sources and methodologies

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Mina

MINA | 133H6VJ48

Quantitative information

Quantitative sustainability indicators for Mina

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Mina	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	81205.20000	kWh/a

Qualitative information

S.4 Consensus Mechanism

Mina is present on the following networks: Ethereum, Mina.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

Mina operates on a unique Proof-of-Stake (PoS) consensus protocol called Ouroboros Samasika, which is adapted to work with Mina's succinct blockchain structure. This innovative approach enables Mina to maintain a lightweight and efficient blockchain while ensuring security and decentralization.

Core Components of Mina's Consensus:

1. **Ouroboros Samasika PoS Protocol:**
Adaptation of Cardano's Ouroboros: Mina's PoS mechanism, Ouroboros Samasika, is a modified version of Cardano's Ouroboros PoS. It has been specifically optimized for Mina's succinct blockchain model, which requires minimal data storage for validating the entire chain.
2. **Succinct Blockchain (Constant Size):**
 - **22 KB Fixed Size:** Unlike traditional blockchains, Mina maintains a minimal, fixed-size blockchain of around 22 KB. It achieves this through the use of recursive zero-knowledge proofs (zk-SNARKs), which compress the entire blockchain into a single, verifiable proof that any node can validate.
 - **Efficient Verification:** This succinct structure allows Mina to operate efficiently without requiring nodes to store vast amounts of historical data. Instead, each node validates the chain by verifying a concise zk-SNARK proof, maintaining security and scalability.
3. **Leader Election with Verifiable Random Function (VRF):**
Randomized Validator Selection: Mina's leader election process is conducted through a Verifiable Random Function (VRF), which randomly selects validators to produce blocks based on their stake. This randomization enhances security, prevents manipulation, and ensures a decentralized network.
4. **Fork Resolution:**
Longest-Chain Rule: Mina employs a longest-chain rule with Ouroboros Samasika. The chain with the most accumulated proof-of-stake work is considered the valid chain. However, due to zk-SNARKs, Mina reduces the chain data required to verify the blockchain, making fork resolution more efficient.

S.5 Incentive Mechanisms and Applicable Fees

Mina is present on the following networks: Ethereum, Mina.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

Mina incentivizes participants through block rewards, transaction fees, and a unique role called Snarkers to support network security, stability, and the succinct blockchain model.

Incentive Mechanisms:

1. **Block Rewards for Validators (Block Producers):**
 - **Incentivizing Security and Block Production:** Validators, known as block producers, earn block rewards for successfully producing blocks. These rewards provide an incentive for users to stake their tokens and contribute to network security and block production.

- Inflationary Model: Mina has an inflationary token supply, where new tokens are minted as block rewards. This inflation rate is designed to decrease over time to reach a stable token supply, balancing incentives with long-term sustainability.

2. Transaction Fees:

- Ongoing Rewards: Validators also earn transaction fees from the transactions included in each block, providing a continuous reward mechanism that grows as network usage increases.
- Dynamic Fees During Congestion: Although Mina's transaction fees are generally flat, they can increase during times of high network demand. Validators can set higher fees to prioritize transactions, ensuring efficient block production during peak periods.

3. Incentives for Snarkers (Proof Generators):

- Role of Snarkers: Mina introduces Snarkers (or Snark Workers), a unique role in the network responsible for generating zk-SNARKs to verify the blockchain's state. These zk-SNARK proofs are essential for maintaining Mina's succinct structure.
- Compensation by Block Producers: Block producers pay Snarkers for their zk-SNARK proofs, creating a decentralized market for proof generation. This setup incentivizes individuals to produce these essential proofs, decentralizing the proof-generation process and supporting network functionality.

Applicable Fees:

Flat Transaction Fees with Dynamic Adjustments: Mina's transaction fees are typically flat, making the network accessible and predictable for users. However, during periods of network congestion, validators may set higher fees to prioritize transactions with higher fees, ensuring that critical transactions can be processed quickly.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary

principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Celestia

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Celestia	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	80791.97748	kWh/a

Qualitative information

S.4 Consensus Mechanism

Celestia is present on the following networks: Celestia, Injective, Osmosis.

Celestia employs a Proof-of-Stake (PoS) consensus mechanism, wherein validators are selected based on the amount of TIA tokens they stake. These validators are responsible for ordering transactions and ensuring data availability within the network.

Injective operates on a Tendermint-based Proof of Stake (PoS) consensus model, ensuring high throughput and immediate transaction finality.

Core Components:

- Tendermint-based Proof of Stake (PoS):
Ensures instant transaction finality and supports efficient block production for high-speed transactions.
- Validator Selection:
Validators are chosen based on the amount of INJ tokens staked, considering both self-staked and delegated tokens, to maintain a decentralized network.
- Delegation:
INJ holders can delegate their tokens to validators, earning a share of staking rewards while participating in network governance.

- Instant Finality:

The Tendermint consensus mechanism provides immediate finality, ensuring transactions cannot be reversed once validated.

Osmosis operates on a Proof of Stake (PoS) consensus mechanism, leveraging the Cosmos SDK and Tendermint Core to provide secure, decentralized, and scalable transaction processing.

Core Components:

- Proof of Stake (PoS): Validators are chosen based on the amount of OSMO tokens they stake or are delegated by other token holders. Validators are responsible for validating transactions, producing blocks, and maintaining network security.
- Cosmos SDK and Tendermint Core: Osmosis uses Tendermint Core for Byzantine Fault Tolerant (BFT) consensus, ensuring fast finality and resistance to attacks as long as less than one-third of validators are malicious.
- Decentralized Governance: OSMO token holders can participate in governance by voting on protocol upgrades and network parameters, fostering a community-driven approach to network development.

S.5 Incentive Mechanisms and Applicable Fees

Celestia is present on the following networks: Celestia, Injective, Osmosis.

The native token, TIA, serves multiple roles within the Celestia ecosystem. Validators earn rewards in TIA for participating in the consensus process and maintaining data availability. Users pay transaction fees in TIA when submitting data to the network.

Injective incentivizes network participation through staking rewards and a unique transaction fee model that supports long-term value for INJ tokens.

Incentive Mechanisms:

Staking Rewards:

INJ holders earn rewards for staking their tokens, encouraging active participation in securing the network.

Validator Rewards:

Validators receive staking rewards and transaction fees for processing transactions and maintaining network security.

Applicable Fees:

Transaction Fees:

Users pay fees in INJ tokens for network transactions, including smart contract execution and trading.

Fee Structure:

A portion of transaction fees is burned via a weekly on-chain auction, reducing the overall supply of INJ tokens and supporting a deflationary tokenomics model.

Osmosis incentivizes validators, delegators, and liquidity providers through a combination of staking rewards, transaction fees, and liquidity incentives.

Incentive Mechanisms:

- Validator Rewards: Validators earn rewards from transaction fees and block rewards, distributed in OSMO tokens, for their role in securing the network and processing transactions. Delegators who stake their OSMO tokens with validators receive a share of these rewards.
- Liquidity Provider Rewards: Users providing liquidity to Osmosis pools earn swap fees and may receive additional incentives in the form of OSMO tokens to encourage liquidity provision.
- Superfluid Staking: Liquidity providers can participate in superfluid staking, staking a portion of their OSMO tokens within liquidity pools. This mechanism allows users to earn staking rewards while maintaining liquidity in the pools

Applicable Fees:

Transaction Fees: Users pay transaction fees in OSMO tokens for network activities, including swaps, staking, and governance participation. These fees are distributed to validators and delegators, incentivizing their continued participation and support for network security.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

To determine the energy consumption of a token, the energy consumption of the network(s) injective, osmosis is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Akash

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Akash	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	79628.40000	kWh/a

Qualitative information

S.4 Consensus Mechanism

The Cosmos network uses the Cosmos SDK, a modular framework that enables developers to build custom, application-specific blockchains. Cosmos SDK chains rely on Tendermint Core, a Byzantine Fault Tolerant (BFT) Proof of Stake (PoS) consensus engine that supports interoperability and fast transaction finality.

Core Components:

1. Tendermint BFT Consensus with Proof of Stake:
 - Validator Selection: Cosmos validators are selected based on the amount of ATOM they stake or receive from delegators. These validators participate in block proposal and validation through a two-thirds majority voting system.
 - Security Threshold: Tendermint BFT ensures network security as long as fewer than one-third of validators act maliciously.
2. Modular Cosmos SDK Framework:
 - Inter-Blockchain Communication (IBC): The Cosmos SDK supports IBC, allowing seamless interoperability between Cosmos-based blockchains.
 - Application Blockchain Interface (ABCI): This interface separates the consensus layer from the application layer, enabling developers to implement custom logic without modifying the consensus engine.

S.5 Incentive Mechanisms and Applicable Fees

The Cosmos network incentivizes both validators and delegators to secure the network through staking rewards, funded by transaction fees and newly minted ATOM.

Incentive Mechanisms:

1. Staking Rewards for Validators and Delegators:

ATOM Rewards: Validators earn staking rewards in ATOM tokens for participating in consensus, with rewards shared with delegators who stake ATOM through delegation.

2. Slashing for Accountability:

Penalties for Misconduct: Validators who act maliciously, such as double-signing or staying offline, face slashing penalties, which remove a portion of their staked ATOM. Delegators may also experience slashing if their chosen validator is penalized, encouraging careful selection of trustworthy validators.

Applicable Fees:

1. Transaction Fees:

User-Paid Fees in ATOM: All transactions on the Cosmos Hub incur fees paid in ATOM, compensating validators for transaction processing and helping to prevent network spam.

2. Customizable Fee Model:

Custom Token Fees: Cosmos SDK allows individual chains to define their own transaction fees in tokens other than ATOM, supporting varied application requirements within the ecosystem.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) cosmos is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Energy Web Token

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Energy Web Token	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	79628.40000	kWh/a

Qualitative information

S.4 Consensus Mechanism

The Energy Web Chain employs a Proof-of-Authority (PoA) consensus mechanism, wherein a set of pre-approved validator nodes—typically reputable energy companies and grid operators—are authorized to validate transactions and create new blocks.

S.5 Incentive Mechanisms and Applicable Fees

The native token, Energy Web Token (EWT), serves multiple functions within the Energy Web ecosystem. It is used to pay for transaction fees on the Energy Web Chain, compensate validators for processing transactions, and interact with services like Energy Web X and worker nodes.

S.9 Energy consumption sources and methodologies

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we

update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for ROSE

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	ROSE	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	79370.06770	kWh/a

Qualitative information

S.4 Consensus Mechanism

ROSE is present on the following networks: Avalanche, Binance Smart Chain, Ethereum, Rose, Solana.

The Avalanche C-Chain uses the Snowman++ consensus mechanism, which is Avalanche's consensus model for linear blockchains and is implemented through the ProposerVM wrapper. Under this model, validators repeatedly query a small random subset of other validators and converge on a preferred block once the required confidence thresholds are met. Only Primary Network validators are entitled to validate the C-Chain. To participate as a validator on Avalanche mainnet, a node must stake a minimum number of token. Token holders may also participate indirectly by delegating an existing validator. Validator identity and admission to staking require the relevant staking credentials, including BLS proofs of possession under the current staking framework. For block production, Snowman++ uses stake-weighted proposer windows. Through the ProposerVM, block-building opportunities are assigned to proposers in 5-second windows, after which block production may fall back more broadly to validators if necessary. This mechanism is intended to regulate block production while preserving network liveness. Consensus voting itself remains based on repeated sub-sampled polling rather than fixed validator committees. Avalanche documentation describes the finality model as sub-second and treated by the protocol as final and irreversible once accepted, while noting that safety is probabilistic in the formal sense because the probability of conflicting acceptance can be reduced to an arbitrarily low level through the protocol parameters. The protocol does not rely on slashing of staked principal. Instead, validator reward eligibility depends on compliance with protocol conditions, including uptime requirements.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum’s consensus mechanism and Layer 2 functionality.

The Emerald Oasis Network utilizes a two-layer architecture to ensure security, scalability, and flexibility for various applications.

Core Components:

1. Consensus Layer (Proof of Stake):

The Consensus Layer operates on a Proof of Stake (PoS) mechanism. Validators stake ROSE tokens to secure the network and validate blocks, with rewards distributed based on stake size and validator performance.

2. ParaTime Layer (Parallel Execution Environments):

- Independent ParaTimes: This layer supports the parallel execution of multiple ParaTimes, each tailored to specific workloads like DeFi or privacy-preserving applications. Each ParaTime runs in isolation, allowing for optimized performance without affecting others.
- Trusted Execution Environments (TEEs): Some ParaTimes use TEEs to provide enhanced privacy, ensuring confidential data handling even from validators, which enables privacy-preserving smart contracts.

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

ROSE is present on the following networks: Avalanche, Binance Smart Chain, Ethereum, Rose, Solana.

The Avalanche C-Chain is secured economically through the native AVAX token. Validator incentives are based primarily on staking rewards, not on redistribution of C-Chain transaction fees. A fixed amount of 360 million AVAX was minted at genesis, while additional AVAX is minted over time as validator rewards, subject to Avalanche's capped token supply framework. Validator rewards are paid at the end of the staking period and are determined by factors such as the validator's stake and compliance with staking conditions. Unlike some proof-of-stake systems, the Avalanche Primary Network does not use slashing of bonded principal as an ordinary penalty mechanism. Instead, the main protocol-level economic consequence for underperformance is the loss of reward eligibility. Where a validator fails to satisfy the applicable uptime requirement during its staking term, that validator does not receive the corresponding staking reward. Transaction fees apply on the C-Chain for transfers and smart-contract execution. The fee model follows EIP-1559 logic, meaning that transactions are priced through a dynamic base fee mechanism. In contrast to Ethereum's validator tip model, C-Chain transaction fees are burned rather than distributed to validators. This means that C-Chain fees function as a supply-reduction mechanism and are intended in part to offset inflation arising from the minting of validator rewards. In addition to ordinary transaction and smart-contract execution fees, Avalanche documentation also recognises protocol fees in connection with other network operations on other chains of the Primary Network, such as certain import or export operations and staking-related actions. However, for the C-Chain itself, the core applicable fee category is the gas fee for transaction inclusion and contract execution, and those fees are handled through the protocol burn mechanism rather than paid to validators or a treasury.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator

commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

The Emerald Oasis Network incentivizes both validators and token holders, fostering network security and scalability through staking and customizable transaction fees.

Incentive Mechanisms:

- Staking Rewards: Validators earn ROSE tokens for securing the Consensus Layer. Rewards are based on performance, encouraging validators to act reliably.
- Delegation Rewards: Token holders can delegate their ROSE tokens to validators, earning a share of staking rewards, which promotes wider network participation.
- Slashing Penalties: Validators face slashing penalties for malicious actions, such as double-signing, ensuring secure network behavior.

Applicable Fees:

ParaTime-Specific Fees: Fees are paid in ROSE tokens and vary by ParaTime based on computational and privacy requirements. Some ParaTimes are optimized for privacy-focused transactions, while others prioritize high throughput for large-scale applications.

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.
- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.

2. Delegators:

- Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.

3. Economic Security:

- Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
- Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties. Fees Applicable on the Solana Blockchain

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.

2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.

3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.

4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

To determine the energy consumption of a token, the energy consumption of the network(s) avalanche, binance_smart_chain, ethereum, solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is

determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Fantom

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Fantom	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	78840.00000	kWh/a

Qualitative information

S.4 Consensus Mechanism

Fantom operates on the Lachesis Protocol, an Asynchronous Byzantine Fault Tolerant (aBFT) consensus mechanism designed for fast, secure, and scalable transactions.

Core Components of Fantom's Consensus:

1. Lachesis Protocol (aBFT):
 - Asynchronous and Leaderless: Lachesis allows nodes to reach consensus independently without relying on a central leader, enhancing decentralization and speed.
 - DAG Structure: Instead of a linear blockchain, Lachesis uses a Directed Acyclic Graph (DAG) structure, allowing multiple transactions to be processed in parallel across nodes. This structure supports high throughput, making the network suitable for applications requiring rapid transaction processing.
2. Event Blocks and Instant Finality:
 - Event Blocks: Transactions are grouped into event blocks, which are validated asynchronously by multiple validators. When enough validators confirm an event block, it becomes part of the Fantom network's history.
 - Instant Finality: Transactions on Fantom achieve immediate finality, meaning they are confirmed and cannot be reversed. This property is ideal for applications requiring fast and irreversible transactions.

S.5 Incentive Mechanisms and Applicable Fees

Fantom's incentive model promotes network security through staking rewards, transaction fees, and delegation options, encouraging broad participation.

Incentive Mechanisms:

1. Staking Rewards for Validators:

- Earning Rewards in FTM: Validators who participate in the consensus process earn rewards in FTM tokens, proportional to the amount they have staked. This incentivizes validators to actively secure the network.
- Dynamic Staking Rate: Fantom's staking reward rate is dynamic, adjusting based on total FTM staked across the network. As more FTM is staked, individual rewards may decrease, maintaining a balanced reward structure that supports long-term network security.

2. Delegation for Token Holders:

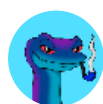
Delegated Staking: Users who do not operate validator nodes can delegate their FTM tokens to validators. In return, they share in the staking rewards, encouraging wider participation in securing the network.

Applicable Fees:

- Transaction Fees in FTM: Users pay transaction fees in FTM tokens. The network's high throughput and DAG structure keep fees low, making Fantom ideal for decentralized applications (dApps) requiring frequent transactions.
- Efficient Fee Model: The low fees and scalability of the network make it cost-effective for users, fostering a favorable environment for high-volume applications.

S.9 Energy consumption sources and methodologies

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.


SNEK

SNEK | BWXFZFFGQ

Quantitative information

Quantitative sustainability indicators for SNEK

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	SNEK	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	68795.20009	kWh/a

Qualitative information

S.4 Consensus Mechanism

Core Components: Cardano uses the Ouroboros consensus mechanism, a Proof of Stake (PoS) protocol designed for scalability, security, and energy efficiency.

Core Concepts:

1. Proof of Stake (PoS): Validators (called slot leaders) are selected based on the amount of ADA they have staked, rather than solving complex computational puzzles. Validators propose and validate blocks, which are added to the blockchain.
2. Epochs and Slot Leaders: Cardano divides time into epochs (fixed time periods), each of which is subdivided into slots. Slot leaders are selected for each slot to validate and propose blocks. Slot leaders are chosen randomly based on the amount of ADA staked. More stake increases the probability of being selected. Validators are responsible for confirming transactions during their slot and passing the block to the next slot leader.
3. Delegation and Staking Pools: ADA holders can delegate their tokens to staking pools, which increases the pool's chances of being selected to validate a block. The pool operator and delegators share the rewards based on their stakes. This system ensures that participants who do not want to operate a full validator node can still earn rewards and contribute to network security by supporting trusted staking pools.
4. Security and Adversary Resistance: Ouroboros ensures security even in the presence of potential attacks. It assumes that adversaries may attempt to propagate alternative chains or send arbitrary messages. The protocol is secure as long as more than 51% of the staked ADA is controlled by

honest participants. Settlement Delay: To protect against adversarial attacks, the new slot leader must consider the last few blocks as transient. Only the blocks preceding these are treated as finalized, ensuring that chain finality is secure against manipulation attempts. This mechanism also allows participants to temporarily go offline and resynchronize as long as they are not disconnected for more than the settlement delay period.

5. Chain Selection: Cardano's nodes adopt the longest valid chain rule: each node stores a local copy of the blockchain and replaces it with any discovered valid, longer chain. This ensures that all nodes eventually converge on a single version of the blockchain, maintaining network consistency.

5.5 Incentive Mechanisms and Applicable Fees

Cardano uses incentive mechanisms to ensure network security and decentralization through staking rewards, slashing mechanisms, and transaction fees.

Incentive Mechanisms to Secure Transactions:

1. Staking Rewards:

- Validators, known as slot leaders, secure the network by validating transactions and creating new blocks. To participate, validators must stake ADA, and those with larger stakes are more likely to be selected as slot leaders.
- Validators are rewarded with newly minted ADA and transaction fees for successfully producing blocks and validating transactions.
- Delegators, who may not wish to run a validator node, can delegate their ADA to staking pools. By doing so, they contribute to the network's security and earn a share of the rewards earned by the pool. The rewards are distributed proportionally based on the amount of ADA delegated.

2. Slashing Mechanism:

- To prevent malicious behavior, Cardano employs a slashing mechanism. Validators who act dishonestly, fail to validate transactions properly, or produce incorrect blocks face penalties that involve the slashing of a portion of their staked ADA.
- This provides strong economic incentives for validators to act honestly and ensures the network's integrity and security.

3. Delegation and Pool Operation:

- Staking pools can charge operation fees (a margin on rewards) to maintain their infrastructure. This includes fixed costs set by pool operators. Delegators earn rewards after pool fees are deducted, providing a balanced incentive for both operators and delegators to participate actively.
- Rewards are distributed at the end of each epoch, where staking pool performance and participation determine the distribution of ADA rewards to all stakeholders.

Applicable Fees:

1. Transaction Fees:

- Transaction fees on Cardano are paid in ADA and are generally low. They are calculated based on the size of the transaction and the network's current demand. These fees are paid to validators for including transactions in new blocks.
- The fee formula is: $a + b \times \text{size}$, where a is a constant (typically 0.155381 ADA), b is a coefficient related to the transaction size (0.000043946 ADA/byte), and size refers to the transaction size in bytes. This ensures that the fee adapts based on network load and the size of each transaction.

2. Staking Pool Fees:

- Staking pool operators charge operational costs and a margin fee, which covers the cost of running and maintaining the staking pool. These fees vary between pools but ensure that operators can continue to provide their services while offering rewards to delegators.

- After the operator's fee, the remaining rewards are distributed among the delegators based on the size of their stake.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) cardano is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Hyperliquid

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Hyperliquid	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	67014.00000	kWh/a

Qualitative information

S.4 Consensus Mechanism

Hyperliquid is a decentralized perpetual exchange (DEX) built on its proprietary Layer 1 blockchain, Hyperliquid L1. At the core of its architecture is the HyperBFT consensus mechanism, inspired by the Hotstuff protocol, designed to meet the demands of high-frequency trading while maintaining security and consistency across the ecosystem.

S.5 Incentive Mechanisms and Applicable Fees

Hyperliquid incentivizes participants through its native token, HYPE. Validators and delegators earn rewards in HYPE for securing the network and participating in governance. Users can also earn HYPE by staking, providing liquidity, and engaging in other ecosystem activities. This dual-token system encourages active participation and supports the network's growth and stability.

Hyperliquid employs a dynamic fee model where transaction fees are based on network activity and the complexity of the transactions. These fees are paid by users conducting transactions on the network and are designed to cover the costs of processing transactions while incentivizing validators.

S.9 Energy consumption sources and methodologies

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites,

open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Dymension

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Dymension	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	65891.35204	kWh/a

Qualitative information

S.4 Consensus Mechanism

Dymension is present on the following networks: Dymension, Osmosis.

Dymension utilizes a modular consensus architecture by combining a tendermint Proof-of-Stake algorithm with modular rollups, designed for scalability and interoperability, ensuring secure and efficient transaction processing across its ecosystem.

Core Components:

- Tendermint Core and Proof of Stake (PoS):

Dymension is built on the Tendermint Core consensus engine, leveraging its Byzantine Fault Tolerance (BFT) properties to ensure network security and resilience against malicious actors. Validators are selected based on their stake in DYM tokens, with higher stakes increasing the likelihood of participating in block production and validation.

- Modular Rollup Framework:

Dymension integrates rollups to process transactions off-chain, which are then submitted to the main chain for finalization. This modular approach enhances scalability and reduces congestion on the primary network.

- Interoperability via IBC:

The network employs the Inter-Blockchain Communication (IBC) protocol to enable seamless data and asset transfers between Dymension and other Cosmos-based blockchains.

- Fast Finality:

Blocks achieve instant finality once validated, reducing confirmation times and ensuring a consistent and efficient user experience.

Osmosis operates on a Proof of Stake (PoS) consensus mechanism, leveraging the Cosmos SDK and Tendermint Core to provide secure, decentralized, and scalable transaction processing.

Core Components:

- Proof of Stake (PoS): Validators are chosen based on the amount of OSMO tokens they stake or are delegated by other token holders. Validators are responsible for validating transactions, producing blocks, and maintaining network security.
- Cosmos SDK and Tendermint Core: Osmosis uses Tendermint Core for Byzantine Fault Tolerant (BFT) consensus, ensuring fast finality and resistance to attacks as long as less than one-third of validators are malicious.
- Decentralized Governance: OSMO token holders can participate in governance by voting on protocol upgrades and network parameters, fostering a community-driven approach to network development.

S.5 Incentive Mechanisms and Applicable Fees

Dymension is present on the following networks: Dymension, Osmosis.

Dymension's incentive structure and fee model are designed to align stakeholder interests, support network security, and maintain scalability across its rollup framework.

Incentive Mechanism:

- Staking Rewards: Validators earn rewards in DYM tokens for participating in consensus by validating transactions and securing the network. Delegators, who stake their DYM tokens with validators, also receive a share of these rewards, incentivizing broad participation in staking. Rollup Operators: Rollup operators who process transactions off-chain earn fees for their services, encouraging efficient execution and off-chain scalability.
- Governance Participation: Stakers and validators actively participate in governance decisions, such as protocol upgrades and parameter adjustments, reinforcing decentralized decision-making.
- Slashing Penalties: Validators who act maliciously or fail to meet performance requirements face slashing penalties, losing a portion of their staked tokens. This ensures accountability and network reliability.

Applicable Fees:

- Transaction Fees: Users pay transaction fees in DYM tokens for activities such as transferring assets, interacting with dApps, and executing rollup transactions.
- Dynamic Fee Adjustment: The fee structure adjusts based on network usage and transaction complexity, balancing affordability with efficient resource allocation.
- Rollup Execution Fees: Fees are levied for transactions processed on rollups, compensating rollup operators and ensuring the economic sustainability of the off-chain execution layer.

Osmosis incentivizes validators, delegators, and liquidity providers through a combination of staking rewards, transaction fees, and liquidity incentives.

Incentive Mechanisms:

- Validator Rewards: Validators earn rewards from transaction fees and block rewards, distributed in OSMO tokens, for their role in securing the network and processing transactions. Delegators who stake their OSMO tokens with validators receive a share of these rewards.
- Liquidity Provider Rewards: Users providing liquidity to Osmosis pools earn swap fees and may receive additional incentives in the form of OSMO tokens to encourage liquidity provision.
- Superfluid Staking: Liquidity providers can participate in superfluid staking, staking a portion of their OSMO tokens within liquidity pools. This mechanism allows users to earn staking rewards while maintaining liquidity in the pools

Applicable Fees:

Transaction Fees: Users pay transaction fees in OSMO tokens for network activities, including swaps, staking, and governance participation. These fees are distributed to validators and delegators, incentivizing their continued participation and support for network security.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

To determine the energy consumption of a token, the energy consumption of the network(s) osmosis is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.


NEO

NEO | N2FWML4CL

Quantitative information

Quantitative sustainability indicators for NEO

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	NEO	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	65700.92176	kWh/a

Qualitative information

S.4 Consensus Mechanism

NEO is present on the following networks: Ethereum, Neo.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

The NEO blockchain uses a Delegated Byzantine Fault Tolerance (dBFT) consensus mechanism to validate transactions, relying on an elected committee and consensus nodes to maintain security and efficiency.

Core Components of dBFT:

1. Candidates:
 - a. Individuals or organizations can register as candidates for committee membership, a process that requires on-chain registration.
 - b. NEO holders vote for candidates based on their NEO holdings, with votes calculated every 21 blocks.
 - c. Elections are valid if more than 20% of all NEO tokens participate in voting. The candidates with the most votes are selected as committee members and consensus nodes.
2. Committee:
 - a. The top 21 candidates with the most votes are elected as committee members. This committee is responsible for governing the network, including electing node roles like Oracle nodes, StateRoot consensus nodes, NeoFS Inner Ring nodes, and consensus nodes.
 - b. The seven members with the highest votes also serve as consensus nodes, responsible for proposing and generating new blocks. Consensus nodes are rotated every 21 blocks to maintain security and decentralization.
 - c. Committee proposals require more than 50% agreement for approval, allowing the committee to update blockchain parameters as needed.

S.5 Incentive Mechanisms and Applicable Fees

NEO is present on the following networks: Ethereum, Neo.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

The NEO network uses a dual-token model featuring NEO and GAS tokens. NEO serves governance and voting functions, while GAS is used for network operations.

Incentive Mechanisms:

- Supply and Governance: NEO has a maximum supply of 100 million tokens, is indivisible, and is used for governance activities, including electing consensus nodes and adjusting consensus parameters.
- Claiming GAS: NEO holders earn GAS based on their holdings, which allows them to participate in the ecosystem without directly purchasing GAS.
- GAS Token:
 - Utility and Fees: GAS is the network's utility token, with a minimum unit of 0.00000001 (1 Datoshi). GAS is required for network fees, including transfers, asset registration, and smart contract execution. GAS transactions are precise, supporting high granularity for fees.

- Supply: Unlike NEO, GAS has no maximum supply, and transaction fees paid in GAS are burned, which contributes to supply control.
- GAS Distribution:
 - Block Rewards: Each block generates 5 GAS, distributed to NEO holders, voters, and the Neo Committee.
 - Committee: NEO Holders receive 10%, distributed based on the holding period. Committee & Consensus Nodes receive 10%, with rewards recalculated every 21 blocks based on updated voting. Voters receive 80%, incentivizing voting participation. Rewards are calculated and distributed every epoch (21 blocks), with voters for consensus nodes receiving a higher reward ratio than those voting for non-consensus committee members.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum, neo is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Gas

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Gas	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	65700.00000	kWh/a

Qualitative information

S.4 Consensus Mechanism

The NEO blockchain uses a Delegated Byzantine Fault Tolerance (dBFT) consensus mechanism to validate transactions, relying on an elected committee and consensus nodes to maintain security and efficiency.

Core Components of dBFT:

1. Candidates:
 - a. Individuals or organizations can register as candidates for committee membership, a process that requires on-chain registration.
 - b. NEO holders vote for candidates based on their NEO holdings, with votes calculated every 21 blocks.
 - c. Elections are valid if more than 20% of all NEO tokens participate in voting. The candidates with the most votes are selected as committee members and consensus nodes.
2. Committee:
 - a. The top 21 candidates with the most votes are elected as committee members. This committee is responsible for governing the network, including electing node roles like Oracle nodes, StateRoot consensus nodes, NeoFS Inner Ring nodes, and consensus nodes.
 - b. The seven members with the highest votes also serve as consensus nodes, responsible for proposing and generating new blocks. Consensus nodes are rotated every 21 blocks to maintain security and decentralization.

- c. Committee proposals require more than 50% agreement for approval, allowing the committee to update blockchain parameters as needed.

S.5 Incentive Mechanisms and Applicable Fees

The NEO network uses a dual-token model featuring NEO and GAS tokens. NEO serves governance and voting functions, while GAS is used for network operations.

Incentive Mechanisms:

- Supply and Governance: NEO has a maximum supply of 100 million tokens, is indivisible, and is used for governance activities, including electing consensus nodes and adjusting consensus parameters.
- Claiming GAS: NEO holders earn GAS based on their holdings, which allows them to participate in the ecosystem without directly purchasing GAS.
- GAS Token:
 - Utility and Fees: GAS is the network's utility token, with a minimum unit of 0.00000001 (1 Datoshi). GAS is required for network fees, including transfers, asset registration, and smart contract execution. GAS transactions are precise, supporting high granularity for fees.
 - Supply: Unlike NEO, GAS has no maximum supply, and transaction fees paid in GAS are burned, which contributes to supply control.
- GAS Distribution:
 - Block Rewards: Each block generates 5 GAS, distributed to NEO holders, voters, and the Neo Committee.
 - Committee: NEO Holders receive 10%, distributed based on the holding period. Committee & Consensus Nodes receive 10%, with rewards recalculated every 21 blocks based on updated voting. Voters receive 80%, incentivizing voting participation. Rewards are calculated and distributed every epoch (21 blocks), with voters for consensus nodes receiving a higher reward ratio than those voting for non-consensus committee members.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) neo is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Moonbeam

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Moonbeam	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	65700.00000	kWh/a

Qualitative information

S.4 Consensus Mechanism

Moonbeam employs a Delegated Proof of Stake (DPoS) consensus mechanism combined with the Polkadot relay chain for enhanced scalability, finality, and security. It utilizes collators and validators, with finality provided by the GRANDPA finality gadget, ensuring deterministic block finality.

Key Features of Moonbeam's Consensus Mechanism:

1. Delegated Proof of Stake (DPoS):
 - Collators and Validators: In Moonbeam's DPoS system, collators maintain the parachain by collecting transactions from users and producing state transition proofs. The collator set is chosen based on the stake they have, including delegated stake. Delegation: Token holders can delegate their stake to collator candidates. The top collator candidates, including those with delegated stake, join the active set. Collators in the active set are randomly selected to produce blocks.
 - Stakes and Block Production: Once a collator is in the active set, their total stake does not impact their chance of being selected to produce blocks.
2. Polkadot Relay Chain Integration:

Moonbeam is built as a parachain on Polkadot, which provides shared security, scalability, and consensus. The relay chain validators ensure that Moonbeam's blocks are validated and secured.

3. GRANDPA Finality:

- Deterministic Finality: Moonbeam relies on Polkadot's GRANDPA finality gadget, which provides fast and deterministic finality for transactions. When a block is finalized, it cannot be reverted except through on-chain governance or forking.
- Parallel Finality: The finality process in Moonbeam occurs simultaneously with block production, unlike Ethereum, which has slower finality. GRANDPA allows for the quick confirmation of blocks, often within a single block on Moonbeam.

4. Block Production:

Blocks are produced by collators who are selected based on their stake and delegated stake, contributing to the network's decentralized nature.

S.5 Incentive Mechanisms and Applicable Fees

Moonbeam incentivizes participation through staking rewards for collators and token holders, alongside transaction fees.

Incentive Mechanism:

1. Collator Rewards:

- Block Rewards: Collators are rewarded with newly minted tokens for successfully producing and validating blocks. These rewards are distributed proportionally to the collators in the active set.
- Transaction Fees: Collators also earn transaction fees from the transactions included in the blocks they produce. These fees are paid by users to prioritize their transactions.

2. Delegation Rewards:

- Delegated Stake: Token holders can delegate their stake to collator candidates. By doing so, they share in the rewards earned by the collators to whom they delegate their tokens. This incentivizes the broader community to participate in governance and block production.
- Voting Power: Token holders who delegate their stake to collators help secure the network and participate in the selection of active collators.

3. Governance Participation:

Voting on Network Proposals: Moonbeam uses its native tokens to allow participants to vote on governance proposals, helping to influence the future direction of the network and incentivizing active involvement in network management.

Applicable Fees:

1. Transaction Fees:

- Fee Calculation: Transaction fees on Moonbeam are determined based on the complexity and size of the transaction. Users pay these fees in the native token (GLMR), which are distributed to the collators.
- Fee Distribution: The fees are split between collators, incentivizing them to process transactions efficiently. The amount of transaction fees can vary depending on network congestion and the size of the transaction.

2. Staking Fees:

Collator Staking: Collators must stake a certain amount of tokens to be eligible for block production. They are incentivized with staking rewards and transaction fees for ensuring the network's security and functionality.

3. Governance Fees:

Voting Fees: Users may need to pay small fees to participate in governance, such as proposing changes or voting on proposals. These fees ensure governance is utilized effectively and prevents spam on the network.

S.9 Energy consumption sources and methodologies

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. Due to the structure of this network, it is not only the mainnet that is responsible for energy consumption. In order to calculate the structure adequately, a proportion of the energy consumption of the connected network, polkadot, must also be taken into account, because the connected network is also responsible for security. This proportion is determined on the basis of gas consumption. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Osmosis

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Osmosis	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	65180.91744	kWh/a

Qualitative information

S.4 Consensus Mechanism

Osmosis is present on the following networks: Cosmos, Osmosis.

The Cosmos network uses the Cosmos SDK, a modular framework that enables developers to build custom, application-specific blockchains. Cosmos SDK chains rely on Tendermint Core, a Byzantine Fault Tolerant (BFT) Proof of Stake (PoS) consensus engine that supports interoperability and fast transaction finality.

Core Components:

1. Tendermint BFT Consensus with Proof of Stake:
 - Validator Selection: Cosmos validators are selected based on the amount of ATOM they stake or receive from delegators. These validators participate in block proposal and validation through a two-thirds majority voting system.
 - Security Threshold: Tendermint BFT ensures network security as long as fewer than one-third of validators act maliciously.
2. Modular Cosmos SDK Framework:
 - Inter-Blockchain Communication (IBC): The Cosmos SDK supports IBC, allowing seamless interoperability between Cosmos-based blockchains.
 - Application Blockchain Interface (ABCI): This interface separates the consensus layer from the application layer, enabling developers to implement custom logic without modifying the consensus engine.

Osmosis operates on a Proof of Stake (PoS) consensus mechanism, leveraging the Cosmos SDK and Tendermint Core to provide secure, decentralized, and scalable transaction processing.

Core Components:

- Proof of Stake (PoS): Validators are chosen based on the amount of OSMO tokens they stake or are delegated by other token holders. Validators are responsible for validating transactions, producing blocks, and maintaining network security.
- Cosmos SDK and Tendermint Core: Osmosis uses Tendermint Core for Byzantine Fault Tolerant (BFT) consensus, ensuring fast finality and resistance to attacks as long as less than one-third of validators are malicious.
- Decentralized Governance: OSMO token holders can participate in governance by voting on protocol upgrades and network parameters, fostering a community-driven approach to network development.

S.5 Incentive Mechanisms and Applicable Fees

Osmosis is present on the following networks: Cosmos, Osmosis.

The Cosmos network incentivizes both validators and delegators to secure the network through staking rewards, funded by transaction fees and newly minted ATOM.

Incentive Mechanisms:

1. Staking Rewards for Validators and Delegators:
ATOM Rewards: Validators earn staking rewards in ATOM tokens for participating in consensus, with rewards shared with delegators who stake ATOM through delegation.
2. Slashing for Accountability:
Penalties for Misconduct: Validators who act maliciously, such as double-signing or staying offline, face slashing penalties, which remove a portion of their staked ATOM. Delegators may also experience slashing if their chosen validator is penalized, encouraging careful selection of trustworthy validators.

Applicable Fees:

1. Transaction Fees:
User-Paid Fees in ATOM: All transactions on the Cosmos Hub incur fees paid in ATOM, compensating validators for transaction processing and helping to prevent network spam.
2. Customizable Fee Model:
Custom Token Fees: Cosmos SDK allows individual chains to define their own transaction fees in tokens other than ATOM, supporting varied application requirements within the ecosystem.

Osmosis incentivizes validators, delegators, and liquidity providers through a combination of staking rewards, transaction fees, and liquidity incentives.

Incentive Mechanisms:

- Validator Rewards: Validators earn rewards from transaction fees and block rewards, distributed in OSMO tokens, for their role in securing the network and processing transactions. Delegators who stake their OSMO tokens with validators receive a share of these rewards.
- Liquidity Provider Rewards: Users providing liquidity to Osmosis pools earn swap fees and may receive additional incentives in the form of OSMO tokens to encourage liquidity provision.

- Superfluid Staking: Liquidity providers can participate in superfluid staking, staking a portion of their OSMO tokens within liquidity pools. This mechanism allows users to earn staking rewards while maintaining liquidity in the pools

Applicable Fees:

Transaction Fees: Users pay transaction fees in OSMO tokens for network activities, including swaps, staking, and governance participation. These fees are distributed to validators and delegators, incentivizing their continued participation and support for network security.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

To determine the energy consumption of a token, the energy consumption of the network(s) cosmos, osmosis is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for OKB

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	OKB	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	64948.66570	kWh/a

Qualitative information

S.4 Consensus Mechanism

OKB is present on the following networks: Ethereum, Okc Token, Okt Chain.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

OKC, also known as OKX Chain, is an EVM-compatible Layer-1 blockchain built on the Cosmos SDK. It employs a Delegated Proof of Stake (DPoS) consensus mechanism, enhanced by Tendermint's Byzantine Fault Tolerant (BFT) protocol. In this system, OKT token holders delegate their tokens to validators, who are responsible for validating transactions and producing new blocks.

Additionally, OKC supports interoperability through the Inter-Blockchain Communication (IBC) protocol, facilitating seamless value transfer between blockchains within the Cosmos ecosystem.

OKT Chain (OKTC) employs a Delegated Proof-of-Stake (DPoS) consensus mechanism, built upon the Tendermint Core architecture. In this system, token holders delegate their staking rights to trusted validators, who are responsible for proposing and validating new blocks. Validators participate in the consensus protocol by broadcasting votes containing cryptographic signatures signed by their private keys. The selection of validators is based on the amount of delegated stake they receive, with the top 21 nodes with the highest number of OKT becoming the block generation nodes in the next cycle.

S.5 Incentive Mechanisms and Applicable Fees

OKB is present on the following networks: Ethereum, Okc Token, Okt Chain.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

Within the OKC ecosystem, users pay transaction fees, typically less than \$0.01, for executing operations on the network. These fees are distributed to validators as rewards for their services in maintaining network security and processing transactions.

OKT Chain's economic model incentivizes both validators and delegators to maintain network security and participate in governance. Transaction fees are also distributed to validators as part of their compensation. Delegators, by staking their OKT tokens with chosen validators, earn a portion of these rewards, proportional to their stake.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on

assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum, okc_token is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Constellation

DAG | /

Quantitative information

Quantitative sustainability indicators for Constellation

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Constellation	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	63334.82700	kWh/a

Qualitative information

S.4 Consensus Mechanism

Constellation is present on the following networks: Base, Constellation.

Base does not operate its own consensus mechanism or decentralised validator set comparable to a Layer-1 blockchain. As an optimistic rollup Layer-2 network, Base relies on Ethereum's Proof-of-Stake consensus for the finality and settlement of data and state commitments posted to Ethereum Layer 1. Transaction ordering on Base is performed by a sequencer, currently operated by Coinbase. This sequencing function provides transaction ordering and execution on the Layer-2 network but does not constitute a decentralised consensus mechanism. The validity of Layer-2 state transitions is supported by an optimistic fault-proof mechanism, under which incorrect state commitments may be challenged during the applicable dispute period. Accordingly, Base's security model depends on Ethereum Layer 1 for settlement and finality, while Layer-2 transaction ordering remains dependent on the sequencer.

Constellation uses a layered consensus architecture centered on its Global Layer 0 (Hypergraph). Validators reach consensus on snapshots containing validated transactions and data, while the network combines stake-based participation with Proof of Reputable Observation (PRO), a reputation mechanism that evaluates validator behavior and influences how nodes assess their peers.

S.5 Incentive Mechanisms and Applicable Fees

Constellation is present on the following networks: Base, Constellation.

Base does not have a native protocol token and does not operate a staking, validator reward or token issuance mechanism. Transaction fees on Base are paid in ETH. The economic incentives within the network are primarily related to transaction processing and network security. Transactions are executed on Base and periodically submitted to Ethereum Layer 1 in batches. As the cost of a Layer-1 submission is shared among multiple Layer-2 transactions, the average transaction cost per transaction may be lower than executing the same transactions directly on Ethereum Layer 1. The integrity of withdrawals from Base is supported by a fault-proof mechanism. Withdrawals are subject to a dispute period during which participants may challenge incorrect state commitments. The dispute process incorporates economic incentives intended to encourage honest behaviour and discourage invalid claims.

DAG is the native token of Constellation and is used for staking and validator incentives. Validators receive DAG rewards for participating in consensus and maintaining the network, while token holders can delegate DAG to validators and participate in the reward structure.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

To determine the energy consumption of a token, the energy consumption of the network(s) base is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Story

IP | BVZJV41L8

Quantitative information

Quantitative sustainability indicators for Story

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Story	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	59130.00000	kWh/a

Qualitative information

S.4 Consensus Mechanism

The Story Blockchain network uses the CometBFT consensus mechanism, which is known for its high performance, scalability, and security and has been proven in the Cosmos ecosystem. CometBFT enables fast block times and instant finality, which is crucial for intellectual property applications.

The network architecture combines the Cosmos SDK for the consensus layer with a modified version of the Geth client as the execution layer to ensure full EVM compatibility. This modular structure allows for seamless integration of new modules and features while optimizing network performance.

S.5 Incentive Mechanisms and Applicable Fees

In the Story network, validators and delegators are incentivized through a structured staking model. Validators, responsible for block production and transaction validation, receive block rewards consisting of newly issued tokens and transaction fees. Delegators can delegate their tokens to validators and in return receive a share of the rewards proportional to their stake. The network supports both flexible and fixed staking periods, with longer lock-in periods offering higher reward multipliers.

Transaction fees follow the EIP-1559 model, in which a base amount is burned, resulting in a deflationary effect. This economic design aims to encourage active participation while ensuring the long-term sustainability of the network.

S.9 Energy consumption sources and methodologies

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Pi Network

PI | 2Z2WZP5KM

Quantitative information

Quantitative sustainability indicators for Pi Network

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Pi Network	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	54399.60000	kWh/a

Qualitative information

S.4 Consensus Mechanism

Pi Network uses a consensus mechanism derived from the Stellar Consensus Protocol (SCP), which is based on the Federated Byzantine Agreement (FBA). The network relies on a trust graph built from "Security Circles" created by individual users. Each participant adds trusted members to their Security Circle, and these interconnected trust relationships form the basis for validating transactions and securing the network.

S.5 Incentive Mechanisms and Applicable Fees

The Pi Network incentivizes user participation through a mobile-first mining system that distributes Pi tokens based on user engagement and contributions to network growth and security. Users, called Pioneers, earn tokens by logging into the app daily and actively participating in the creation of Security Circles, which help build the trust graph required for consensus. Transaction fees on the network are expected to remain low and accessible, and the governance of these fees will evolve as the network transitions fully to its open mainnet phase.

S.9 Energy consumption sources and methodologies

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites,

open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Mantle

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Mantle	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	53592.21193	kWh/a

Qualitative information

S.4 Consensus Mechanism

Mantle is present on the following networks: Ethereum, Mantle.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

Mantle is a Layer-2 rollup built on top of Ethereum, designed to leverage Ethereum's security and Proof-of-Stake (PoS) consensus without an independent consensus layer.

Core Components of Mantle's Consensus:

1. Ethereum PoS Inheritance:

Layer-2 Rollup Model: Mantle does not operate its own consensus mechanism; instead, it relies on Ethereum's PoS for transaction finalization and network security. As a rollup on Ethereum, Mantle inherits the security guarantees of Ethereum's established PoS model.

2. Rollup Type Options:

Optimistic Rollups or Zero-Knowledge Rollups: Depending on its configuration, Mantle may use either Optimistic Rollups or Zero-Knowledge Rollups (zk-Rollups) to batch transactions. These rollup methods allow Mantle to achieve efficient off-chain processing and on-chain finality by periodically committing transaction data to Ethereum's mainnet.

S.5 Incentive Mechanisms and Applicable Fees

Mantle is present on the following networks: Ethereum, Mantle.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

Mantle aims to reduce transaction fees for users by utilizing Ethereum compatibility, rollup technology, and transaction bundling, offering a cost-effective Layer-2 solution.

Incentive Mechanisms:

1. Gas Fee Model:

Ethereum Compatibility: Mantle is EVM-compatible, meaning it shares Ethereum's gas fee model. Transactions require users to pay fees in units of gas, with costs varying based on transaction complexity and computational demand.

2. Lower Transaction Costs:

- Off-Chain Processing with Bundling: By processing transactions off-chain and settling data on Ethereum only periodically, Mantle reduces individual transaction costs. This method results in significantly lower fees compared to the Ethereum mainnet.
- Economies of Scale: Through transaction bundling, Mantle can spread the cost of Ethereum's on-chain settlement across multiple transactions, allowing users to pay only a fraction of the gas fees they would incur directly on Ethereum.

Applicable Fees:

Layer-2 Gas Fees: While Mantle's gas fees are lower than those on Ethereum, they are still measured in units of gas and depend on transaction complexity. The fees reflect the cost of executing transactions in Mantle's Layer-2 environment while benefiting from reduced overall gas consumption due to batching.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. Due to the structure of this network, it is not only the mainnet that is responsible for energy consumption. In order to calculate the structure adequately, a proportion of the energy consumption of the connected network, ethereum, must also be taken into account, because the connected network is also responsible for security. This proportion is determined on the basis of gas consumption. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Monad

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Monad	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	53348.40000	kWh/a

Qualitative information

S.4 Consensus Mechanism

Monad uses a custom Byzantine Fault Tolerant protocol called MonadBFT to achieve network-wide agreement on transaction ordering and block proposals. Consensus proceeds with asynchronous coordination across validators, decoupling transaction execution from block ordering to increase throughput.

S.5 Incentive Mechanisms and Applicable Fees

The native token MON is used to pay network transaction (gas) fees, which compensate validators for including and processing transactions.

S.9 Energy consumption sources and methodologies

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we

update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Acala

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Acala	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	52560.00000	kWh/a

Qualitative information

S.4 Consensus Mechanism

Acala operates as a parachain within the Polkadot ecosystem, leveraging Polkadot's shared security model. Acala utilizes collators to aggregate transactions and produce blocks, which are then validated by the Polkadot relay chain validators.

S.5 Incentive Mechanisms and Applicable Fees

The native token of the Acala Network, ACA, serves multiple roles, including transaction fee payments, staking, and governance participation. ACA holders can stake their tokens to secure the network and earn rewards.

S.9 Energy consumption sources and methodologies

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. Due to the structure of this network, it is not only the mainnet that is responsible for energy consumption. In order to calculate the structure adequately, a proportion of the energy consumption of the

connected network, polkadot, must also be taken into account, because the connected network is also responsible for security. This proportion is determined on the basis of gas consumption. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Stellar Lumen

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Stellar Lumen	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	52560.00000	kWh/a

Qualitative information

S.4 Consensus Mechanism

Consensus is reached through the Stellar Consensus Protocol (SCP), which is based on federated Byzantine agreement. This mechanism allows fast finality without mining or staking, but it depends on validators choosing other validators which they trust to reach agreement, called a quorum set. As a result, validator diversity and governance choices play a critical role in security, and concentration of influence among large operators may increase systemic risks.

S.5 Incentive Mechanisms and Applicable Fees

Stellar does not use block rewards or mining. Instead, validators operate without direct protocol-level rewards. While this design keeps costs low, it may reduce incentives for validator participation compared to staking-based models. The sustainability of validator engagement depends largely on external factors such as institutional involvement and ecosystem adoption.

S.9 Energy consumption sources and methodologies

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The

energy consumption of the hardware devices was measured in certified test laboratories. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Nesa AI

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Nesa AI	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	42048.00000	kWh/a

Qualitative information

S.4 Consensus Mechanism

Consensus within the Nesa blockchain is achieved through validator-based agreement on the canonical state of the ledger and inclusion of transactions into blocks. Validators are responsible for block validation, state transition verification, and finalization of ledger updates. Participation in validation is designed to be linked to staking of the native token once live, thereby economically aligning validator incentives with network security. Miners, by contrast, are responsible for executing AI inference tasks and submitting computation results to the network. Miners do not participate in block production, transaction validation, or ledger finalization and therefore are not part of the consensus mechanism. Their role is operational (computational service provision) rather than consensus-forming. Consensus-related selection mechanisms include the use of verifiable random functions (VRFs) and cryptographic commit-reveal procedures to support integrity and coordination of inference-related submissions.

S.5 Incentive Mechanisms and Applicable Fees

The incentive structure is designed to allocate native token rewards to different categories of network participants once the token is operational. Validators are expected to receive staking-related rewards for participating in consensus and securing the ledger. Miners are intended to receive compensation for executing AI inference tasks. Model contributors and other infrastructure participants may also receive protocol-level rewards where applicable. Network users are expected to pay fees for AI inference and related transactions. Such fees are intended to be denominated and

settled in the native token following its activation. At the time of this white paper, these mechanisms are not yet operational.

S.9 Energy consumption sources and methodologies

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.


initia

INIT | 5H84WFH8T

Quantitative information

Quantitative sustainability indicators for initia

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	initia	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	40602.60000	kWh/a

Qualitative information

S.4 Consensus Mechanism

Initia is a Layer 1 blockchain built using the Cosmos SDK and CometBFT consensus engine. It operates under a Proof-of-Stake model, where validators are responsible for block production and finality based on the amount of INIT tokens bonded to them.

S.5 Incentive Mechanisms and Applicable Fees

The INIT token is used for transaction fees, staking, and governance within the Initia ecosystem. Participants receive staking rewards based on their contributions.

S.9 Energy consumption sources and methodologies

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The

information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Babylon

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Babylon	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	40208.40000	kWh/a

Qualitative information

S.4 Consensus Mechanism

Babylon is a Cosmos SDK-based blockchain that utilizes a Tendermint-style Byzantine Fault Tolerant (BFT) Proof-of-Stake consensus mechanism. Validators are selected based on the amount of BABY tokens staked, and are responsible for proposing and validating new blocks in a round-robin process. Finality is achieved after a fixed number of confirmations, and slashing conditions are in place to penalize faulty or malicious validator behavior.

S.5 Incentive Mechanisms and Applicable Fees

Babylon uses the native BABY token to incentivize network participation and governance. Validators earn rewards for securing the network by validating transactions and producing blocks, with rewards consisting of transaction fees and newly minted tokens.

S.9 Energy consumption sources and methodologies

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. When

calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Concordium

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Concordium	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	40208.40000	kWh/a

Qualitative information

S.4 Consensus Mechanism

Concordium is a public and permissionless blockchain that employs a Layered Proof-of-Stake (PoS) consensus mechanism combined with a Byzantine Fault Tolerance (BFT) protocol for enhanced security and finality.

Core Components:

1. Layered PoS Structure:

- Proof-of-Stake for Block Production: Concordium uses PoS where users, known as validators, stake their tokens to participate in block creation and validation. Each validator's chances of being selected as the block producer (leader) depend on their staked amount, promoting fair participation.
- Two-Layer Structure: Concordium separates block production and finalization into two distinct layers to increase security and reduce forks:
 - Block Production Layer: Responsible for creating new blocks and proposing them to the network.
 - Finalization Layer: Ensures blocks are finalized using a BFT protocol, making them irreversible once confirmed.

2. Finalization Layer (BFT Protocol):

- Byzantine Fault Tolerance: The finalization layer uses a BFT protocol to validate and finalize blocks, ensuring they cannot be altered once added. This layer provides extra security by minimizing the potential for forks, as finalized blocks are definitive.

- Finalization Committee: A subset of bakers (validators) is chosen as the finalization committee, whose members, known as finalizers, handle the finalization of blocks. This guarantees that confirmed blocks achieve consensus and permanence.
- 3. Identity-Based Anonymity:
 - Identity Verification: Concordium introduces an identity layer that verifies participant identities while maintaining user anonymity. This approach balances regulatory compliance and privacy, ensuring participants are pseudonymous but verifiable.
 - Sybil Attack Resistance: The combination of PoS and identity verification reduces the risk of Sybil attacks, as participants must have verified identities to contribute to consensus.
- 4. Leader Selection and Epochs:
 - Leader Selection: In each epoch, a specific baker (validator) is chosen as the leader, responsible for producing blocks. Leader selection uses a random nonce to ensure fairness and unpredictability.
 - Epochs: Each epoch lasts one hour, with fixed bakers for the duration. Leader selection within the epoch is based on each baker's relative stake, providing proportional chances for leader selection.

S.5 Incentive Mechanisms and Applicable Fees

Concordium incentivizes network security, participation, and governance through staking rewards, transaction fees, and a dynamic minting model.

Incentive Mechanisms:

1. Validator Rewards:
 - Transaction Fees and Staking Rewards: Validators who contribute to block creation and verification receive transaction fees and staking rewards. This incentivizes validators to uphold network security and stability.
 - Baker and Finalizer Rewards: Concordium distributes rewards between bakers (validators creating blocks) and finalizers (validators finalizing blocks). Bakers receive the majority of rewards for their role in block production.
2. Staking Rewards:
 - Proportional Rewards: Validators earn rewards based on the size of their stake, encouraging users to participate in staking and network activities. The more CCD tokens staked, the higher the staking reward.
 - Governance Participation: By staking, users gain influence in network governance, including protocol upgrades and policy changes. This mechanism aligns validators' interests with the platform's long-term goals.
3. Minting Process and Distribution:
 - Daily Minting of CCD Tokens: Concordium mints new CCD tokens daily. This minting rate is governed by preset parameters to control the supply of CCD and ensure a sustainable ecosystem.
 - Distribution Model: 10% of newly minted CCD is allocated to the Concordium Foundation as a Platform Development Charge to support development.
 - 90% is divided as follows: Baker Rewards: 85% of the 90% is allocated to bakers for their role in block production. Finalizer Rewards: 5% of the 90% is allocated to finalizers, incentivizing their contribution to securing block finality.

Applicable Fees:

- Transaction fees on Concordium vary based on network demand and capacity, adjusting dynamically to ensure sustainable operations.

- Revenue for Validators: Collected fees are used to compensate validators, motivating them to process transactions accurately and efficiently.

S.9 Energy consumption sources and methodologies

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for VeChain

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	VeChain	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	39946.16522	kWh/a

Qualitative information

S.4 Consensus Mechanism

VeChain is present on the following networks: Binance Smart Chain, Vechain.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

VeChain employs a Proof of Authority (PoA) 2.0 consensus mechanism, where trusted Authority Masternodes are responsible for validating transactions, providing both security and efficiency for enterprise applications.

Core Components of VeChain's Consensus:

1. Proof of Authority (PoA) 2.0:

Trusted Authority Masternodes: VeChain's PoA 2.0 relies on a set of pre-approved Authority Masternodes to validate blocks and confirm transactions. These nodes are selected based on their reputation and reliability, ensuring network integrity and trustworthiness.

2. Finality and Security:

Immediate Transaction Finality: Once a block is validated under PoA 2.0, it is final, reducing the likelihood of forks. This immediate finality enhances the security and reliability of the network, making it suitable for enterprise-grade applications.

S.5 Incentive Mechanisms and Applicable Fees

VeChain is present on the following networks: Binance Smart Chain, VeChain.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

VeChain's incentive model utilizes a dual-token system to support staking, transaction processing, and economic stability, helping to ensure predictable costs for network users.

Incentive Mechanisms:

1. Dual-Token Model:

- VET (VeChain Token): VET is used primarily for value transfer and staking on the network. VET holders can stake their tokens to generate VTHO, which serves as "gas" for transactions.

- VTHO (VeThor Token): VTHO is used to pay for transaction fees, providing a buffer against fluctuations in VET's market price. This setup decouples transaction costs from VET's volatility, allowing for stable and predictable transaction fees.

2. Staking Rewards:

VET Staking to Generate VTHO: By staking VET, holders automatically generate VTHO tokens, which can be used to cover transaction costs. This staking mechanism incentivizes VET holders to participate in the network and secure its operations.

Applicable Fees:

Transaction Fees in VTHO: Transaction fees on VeChain are paid in VTHO, keeping costs stable and predictable for users regardless of VET's market price. This predictable fee model makes the network appealing for enterprises and high-volume applications.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

To determine the energy consumption of a token, the energy consumption of the network(s) binance_smart_chain is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Verona

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Verona	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	39817.24889	kWh/a

Qualitative information

S.4 Consensus Mechanism

Verona is present on the following networks: Base, Ethereum, Osmosis, Xion.

Base does not operate its own consensus mechanism or decentralised validator set comparable to a Layer-1 blockchain. As an optimistic rollup Layer-2 network, Base relies on Ethereum's Proof-of-Stake consensus for the finality and settlement of data and state commitments posted to Ethereum Layer 1. Transaction ordering on Base is performed by a sequencer, currently operated by Coinbase. This sequencing function provides transaction ordering and execution on the Layer-2 network but does not constitute a decentralised consensus mechanism. The validity of Layer-2 state transitions is supported by an optimistic fault-proof mechanism, under which incorrect state commitments may be challenged during the applicable dispute period. Accordingly, Base's security model depends on Ethereum Layer 1 for settlement and finality, while Layer-2 transaction ordering remains dependent on the sequencer.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the

canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

Osmosis operates on a Proof of Stake (PoS) consensus mechanism, leveraging the Cosmos SDK and Tendermint Core to provide secure, decentralized, and scalable transaction processing.

Core Components:

- Proof of Stake (PoS): Validators are chosen based on the amount of OSMO tokens they stake or are delegated by other token holders. Validators are responsible for validating transactions, producing blocks, and maintaining network security.
- Cosmos SDK and Tendermint Core: Osmosis uses Tendermint Core for Byzantine Fault Tolerant (BFT) consensus, ensuring fast finality and resistance to attacks as long as less than one-third of validators are malicious.
- Decentralized Governance: OSMO token holders can participate in governance by voting on protocol upgrades and network parameters, fostering a community-driven approach to network development.

XION uses a Tendermint-based Proof-of-Stake (PoS) consensus mechanism. Validators are responsible for securing the network and can be selected through token delegation. This setup supports decentralization while maintaining network integrity.

S.5 Incentive Mechanisms and Applicable Fees

Verona is present on the following networks: Base, Ethereum, Osmosis, Xion.

Base does not have a native protocol token and does not operate a staking, validator reward or token issuance mechanism. Transaction fees on Base are paid in ETH. The economic incentives within the network are primarily related to transaction processing and network security. Transactions are executed on Base and periodically submitted to Ethereum Layer 1 in batches. As the cost of a Layer-1 submission is shared among multiple Layer-2 transactions, the average transaction cost per transaction may be lower than executing the same transactions directly on Ethereum Layer 1. The integrity of withdrawals from Base is supported by a fault-proof mechanism. Withdrawals are subject to a dispute period during which participants may challenge incorrect state commitments. The dispute process incorporates economic incentives intended to encourage honest behaviour and discourage invalid claims.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

Osmosis incentivizes validators, delegators, and liquidity providers through a combination of staking rewards, transaction fees, and liquidity incentives.

Incentive Mechanisms:

- Validator Rewards: Validators earn rewards from transaction fees and block rewards, distributed in OSMO tokens, for their role in securing the network and processing transactions. Delegators who stake their OSMO tokens with validators receive a share of these rewards.
- Liquidity Provider Rewards: Users providing liquidity to Osmosis pools earn swap fees and may receive additional incentives in the form of OSMO tokens to encourage liquidity provision.
- Superfluid Staking: Liquidity providers can participate in superfluid staking, staking a portion of their OSMO tokens within liquidity pools. This mechanism allows users to earn staking rewards while maintaining liquidity in the pools

Applicable Fees:

Transaction Fees: Users pay transaction fees in OSMO tokens for network activities, including swaps, staking, and governance participation. These fees are distributed to validators and delegators, incentivizing their continued participation and support for network security.

Transaction fees are paid in the native token and used to reduce token issuance by offsetting the need for additional minting. Rewards go to validators and delegators based on their participation, and governance rights allow token holders to vote on protocol decisions. Inflation is calculated based only on staked tokens.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

To determine the energy consumption of a token, the energy consumption of the network(s) base, ethereum, osmosis is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary

principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Celo

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Celo	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	39420.00000	kWh/a

Qualitative information

S.4 Consensus Mechanism

Celo is present on the following networks: Celo, Near Protocol.

Celo uses a Proof of Stake (PoS) consensus model, which supports a decentralized, community-driven approach to governance and network security.

Core Components of Celo's Consensus:

1. Proof of Stake (PoS):

Validator Role: Validators are responsible for creating new blocks, validating transactions, and maintaining the security and integrity of the network. Validators are selected based on the amount of CELO tokens they hold and stake, incentivizing honest participation and network reliability.

2. Decentralized Governance:

Community Voting: Governance on Celo is decentralized, allowing CELO token holders to vote on proposals and changes to the network. This community-driven approach ensures that token holders have a say in the network's development and strategic direction.

The NEAR Protocol uses a unique consensus mechanism combining Proof of Stake (PoS) and a novel approach called Doomslug, which enables high efficiency, fast transaction processing, and secure finality in its operations.

Core Concepts:

1. Doomslug and Proof of Stake:

- NEAR's consensus mechanism primarily revolves around PoS, where validators stake NEAR tokens to participate in securing the network. However, NEAR's implementation is enhanced with the Doomslug protocol.
- Doomslug allows the network to achieve fast block finality by requiring blocks to be confirmed in two stages. Validators propose blocks in the first step, and finalization occurs when two-thirds of validators approve the block, ensuring rapid transaction confirmation.

2. Sharding with Nightshade:

- NEAR uses a dynamic sharding technique called Nightshade. This method splits the network into multiple shards, enabling parallel processing of transactions across the network, thus significantly increasing throughput. Each shard processes a portion of transactions, and the outcomes are merged into a single "snapshot" block.
- This sharding approach ensures scalability, allowing the network to grow and handle increasing demand efficiently.

Consensus Process:

1. Validator Selection:

- Validators are selected to propose and validate blocks based on the amount of NEAR tokens staked. This selection process is designed to ensure that only validators with significant stakes and community trust participate in securing the network.

2. Transaction Finality:

- NEAR achieves transaction finality through its PoS-based system, where validators vote on blocks. Once two-thirds of validators approve a block, it reaches finality under Doomslug, meaning that no forks can alter the confirmed state.

3. Epochs and Rotation:

- Validators are rotated in epochs to ensure fairness and decentralization. Epochs are intervals in which validators are reshuffled, and new block proposers are selected, ensuring a balance between performance and decentralization.

S.5 Incentive Mechanisms and Applicable Fees

Celo is present on the following networks: Celo, Near Protocol.

Celo's incentive model rewards validators and prioritizes accessibility with minimal transaction fees, especially for cross-border payments, supporting a flexible and user-friendly ecosystem.

Incentive Mechanisms:

1. Validator Rewards:

Transaction Fees and Newly Minted Tokens: Validators earn rewards from transaction fees as well as newly minted CELO tokens. This dual-source reward system provides a continuous financial incentive for validators to act honestly and secure the network.

2. Transaction Flexibility and Gas Price:

- **Gas Limit and Price Control:** Each transaction specifies a maximum gas limit, ensuring that users are not excessively charged if a transaction fails. Users can also set a gas price to prioritize transactions, allowing faster processing for higher fees.
- **Payment Flexibility with Multiple Currencies:** Unlike many blockchains, Celo allows transaction fees to be paid in various ERC-20 tokens, providing flexibility for users. This approach improves accessibility, especially for individuals with limited access to traditional banking.

3. Minimal Fee Structure for Accessibility:

- Designed for Low-Cost Transactions: Celo's fee structure is intentionally minimal, particularly for cross-border payments, making it ideal for users who may not have traditional banking options. This focus on accessibility aligns with Celo's mission to bring blockchain technology to underserved communities.

Applicable Fees:

Transaction Fees: Fees are calculated based on gas usage, with a maximum gas limit set per transaction. This limit protects users from excessive costs, while the option to pay in multiple currencies enhances flexibility.

NEAR Protocol employs several economic mechanisms to secure the network and incentivize participation.

Incentive Mechanisms to Secure Transactions:

1. Staking Rewards:

Validators and delegators secure the network by staking NEAR tokens. Validators earn around 5% annual inflation, with 90% of newly minted tokens distributed as staking rewards. Validators propose blocks, validate transactions, and receive a share of these rewards based on their staked tokens. Delegators earn rewards proportional to their delegation, encouraging broad participation.

2. Delegation:

Token holders can delegate their NEAR tokens to validators to increase the validator's stake and improve the chances of being selected to validate transactions. Delegators share in the validator's rewards based on their delegated tokens, incentivizing users to support reliable validators.

3. Slashing and Economic Penalties:

Validators face penalties for malicious behavior, such as failing to validate correctly or acting dishonestly. The slashing mechanism enforces security by deducting a portion of their staked tokens, ensuring validators follow the network's best interests.

4. Epoch Rotation and Validator Selection:

Validators are rotated regularly during epochs to ensure fairness and prevent centralization. Each epoch reshuffles validators, allowing the protocol to balance decentralization with performance.

Fees on the NEAR Blockchain:

1. Transaction Fees:

Users pay fees in NEAR tokens for transaction processing, which are burned to reduce the total circulating supply, introducing a potential deflationary effect over time. Validators also receive a portion of transaction fees as additional rewards, providing an ongoing incentive for network maintenance.

2. Storage Fees:

NEAR Protocol charges storage fees based on the amount of blockchain storage consumed by accounts, contracts, and data. This requires users to hold NEAR tokens as a deposit proportional to their storage usage, ensuring the efficient use of network resources.

3. Redistribution and Burning:

A portion of the transaction fees (burned NEAR tokens) reduces the overall supply, while the rest is distributed to validators as compensation for their work. The burning mechanism helps maintain long-term economic sustainability and potential value appreciation for NEAR holders.

4. Reserve Requirement:

Users must maintain a minimum account balance and reserves for data storage, encouraging efficient use of resources and preventing spam attacks.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

To determine the energy consumption of a token, the energy consumption of the network(s) celo, near_protocol is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for tx

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	tx	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	35478.00000	kWh/a

Qualitative information

S.4 Consensus Mechanism

TX Chain uses a bonded Proof-of-Stake consensus model. Validators participate in block production and network security by staking TX tokens, while delegators can assign stake to validators and share in the consensus process indirectly. The network relies on CometBFT to provide deterministic finality and resilience against Byzantine faults. Validator misconduct can trigger slashing, with penalties enforced at the protocol level.

S.5 Incentive Mechanisms and Applicable Fees

The TX token is used for transaction fees, staking, and validator incentives. Gas fees are paid for blockspace and network operations, with fee levels adjusting according to network usage. Validators and delegators receive staking rewards for securing the chain, while longer-term token emissions are structured to support validator participation, ecosystem development, and broader network growth.

S.9 Energy consumption sources and methodologies

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The

energy consumption of the hardware devices was measured in certified test laboratories. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for MANTRA

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	MANTRA	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	33375.60000	kWh/a

Qualitative information

S.4 Consensus Mechanism

MANTRA Chain is a Layer 1 blockchain built using the Cosmos SDK and employs the Tendermint Byzantine Fault Tolerant (BFT) consensus mechanism. It operates under a Proof-of-Stake (PoS) model, where validators are selected based on the amount of OM tokens they stake.

S.5 Incentive Mechanisms and Applicable Fees

Validators and delegators receive staking rewards for participating in network security, with additional incentives funded through protocol issuance. Transaction fees are paid in the network's native token and distributed through the Cosmos SDK's fee and reward mechanisms. Validators may charge commissions on rewards received by their delegators, while slashing can penalize certain forms of validator misconduct.

S.9 Energy consumption sources and methodologies

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. When

calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Lisk

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Lisk	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	32850.00000	kWh/a

Qualitative information

S.4 Consensus Mechanism

Lisk employs a Delegated Proof of Stake (DPoS) consensus mechanism to maintain a balance between decentralization, security, and efficiency in block production and transaction validation.

Core Components of Lisk's Consensus:

1. Delegated Proof of Stake (DPoS):
Community-Elected Delegates: Lisk operates with a fixed set of 101 active delegates, chosen by token holders through a voting process. Lisk holders vote for delegates by staking their LSK tokens, and the top 101 delegates with the highest votes are selected for block production and validation.
2. Block Production:
Fair Rotational System: Active delegates take turns producing blocks at fixed intervals, ensuring fair participation and equal opportunity for all elected delegates. This rotation system promotes decentralization and prevents single entities from dominating block production.
3. Finality and Security:
Reduced Fork Risk: The fixed number of reputable delegates provides a fast confirmation time for blocks and minimizes the likelihood of forks or attacks, enhancing overall network security and stability.

S.5 Incentive Mechanisms and Applicable Fees

Lisk's incentive model rewards both active delegates and token holders, ensuring secure and consistent network performance while managing inflation.

Incentive Mechanisms:

1. Rewards for Delegates:

- Block Rewards: Delegates receive rewards in LSK tokens for producing blocks, incentivizing them to actively participate in securing and maintaining the network. This reward structure encourages reliable block production from the community-elected delegates.
- Transaction Fees: Delegates also earn transaction fees paid in LSK tokens for each transaction they validate within blocks. This provides an additional source of income and incentivizes efficient transaction processing.

2. Voting Incentives for Token Holders:

Supporting Reliable Delegates: Lisk token holders benefit indirectly by voting for trustworthy and stable delegates, as these delegates help secure the network. Token holders play an active role in network governance by supporting reliable participants.

3. Reward Reduction Over Time:

Sustainable Token Economy: Lisk's block rewards decrease over time to control inflation and ensure the long-term sustainability of the token economy. This gradual reduction in rewards aligns with Lisk's goal of managing token supply and maintaining a healthy economic structure.

Applicable Fees:

1. Fixed Fee Structure:

Predictable Transaction Costs: Lisk employs a fixed fee structure for standard transactions, providing users with predictability in transaction costs and making the network accessible and user-friendly.

2. Two-Cost Structure for Mainnet Transactions:

Layer 2 Execution Fee and Layer 1 Data Fee: Every transaction on Lisk's Mainnet has two associated costs: an L2 execution fee and an L1 data fee. This dual-fee model aligns with Lisk's Layer 2 architecture and its reliance on Ethereum for security and data storage.

S.9 Energy consumption sources and methodologies

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. Due to the structure of this network, it is not only the mainnet that is responsible for energy consumption. In order to calculate the structure adequately, a proportion of the energy consumption of the connected network, ethereum, must also be taken into account, because the connected network is also responsible for security. This proportion is determined on the basis of gas consumption. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are

assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Nexus

NEX | TPCZ31MGM

Quantitative information

Quantitative sustainability indicators for Nexus

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Nexus	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	31930.20000	kWh/a

Qualitative information

S.4 Consensus Mechanism

Nexus uses NexusBFT, a consensus protocol built on CometBFT. Validators participate in a Byzantine Fault Tolerant consensus process consisting of proposal, prevote, precommit, and commit phases. A block becomes final once it receives precommit votes from more than two-thirds of validators, providing deterministic finality without probabilistic confirmation periods. Validators operate both consensus and execution nodes and are responsible for maintaining network availability and validating transactions.

S.5 Incentive Mechanisms and Applicable Fees

The Nexus network is designed to reward participants who contribute computational resources and verification services. Users submit computation tasks to the network and pay fees associated with execution and proof generation. Rewards are distributed to participants that perform computation, generate proofs, and support network operations, aligning incentives around the provision and verification of computational work.

S.9 Energy consumption sources and methodologies

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites,

open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.


Secret

SCRT | 93XJT88VH

Quantitative information

Quantitative sustainability indicators for Secret

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Secret	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	31536.00000	kWh/a

Qualitative information

S.4 Consensus Mechanism

Secret utilizes the Proof of Stake (PoS) consensus mechanism to secure its network, with an emphasis on privacy-preserving features. The blockchain is built on the Cosmos SDK, allowing it to interoperate with other blockchains while maintaining the ability to offer confidential transactions.

Key Features of Secret Blockchain's Consensus Mechanism:

1. Proof of Stake (PoS):

Validators are selected to produce and validate blocks based on the number of SCRT tokens they stake. Stakers, also known as validators, secure the network by participating in the consensus process, ensuring transaction validation and block production. The greater the amount of SCRT tokens staked, the higher the chances of being selected to validate the next block.

2. Privacy by Default:

Secret Network uses encryption and trusted execution environments (TEEs) to ensure that data is kept private. This is in contrast to most blockchains that publicly display all transaction data. The network supports private smart contracts, meaning that the details of transactions, including the sender, recipient, and amount, are confidential by default.

3. Validator and Delegator Structure:

Validators in the network are responsible for producing blocks, validating transactions, and maintaining network security. Token holders who do not wish to operate their own validator node can delegate their SCRT tokens to a validator. Delegators share in the rewards of validators based on the amount of SCRT tokens they delegate.

4. Cosmos-SDK & Tendermint Core:

The Cosmos-SDK and Tendermint Core provide the underlying infrastructure for Secret's PoS consensus. This enables fast finality and low-latency transaction processing, ensuring the network is both scalable and secure.

S.5 Incentive Mechanisms and Applicable Fees

Incentive Mechanism:

1. Validator Rewards:

Validators are rewarded in SCRT tokens for producing blocks, validating transactions, and maintaining network security. These rewards are proportional to the amount of stake a validator holds. Validators are selected based on the amount of SCRT tokens staked, and the greater the stake, the higher the chances of being selected to validate the next block.

2. Delegator Rewards:

Token holders who delegate their SCRT tokens to a validator receive a share of the rewards earned by that validator. The more SCRT a delegator contributes, the larger their share of the rewards. This incentivizes the broader community to participate in the network's staking process without needing to operate their own validator nodes.

3. Staking and Delegation:

Staking is essential for network participation and security, and it is the primary mechanism through which both validators and delegators earn rewards. This staking model aligns participants' interests with the network's success and integrity. Validators and delegators are motivated to act honestly because they face slashing penalties if they fail to perform their duties correctly, such as participating in double-signing or other malicious activities.

Applicable Fees:

1. Transaction Fees:

Users pay transaction fees in SCRT tokens to process transactions on the network. These fees are used to incentivize validators for validating and including transactions in blocks. Fees are determined dynamically based on network demand and transaction complexity. In periods of high congestion, users may need to pay higher fees for quicker transaction processing.

2. Smart Contract Fees:

Secret supports private smart contracts, and users must pay fees for executing these contracts. These fees are also paid in SCRT tokens and are distributed to validators who process the execution. The fees associated with smart contract execution are based on the resources consumed by the contract, including computational power and storage.

S.9 Energy consumption sources and methodologies

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. Due to the structure of this network, it is not only the mainnet that is responsible for energy consumption. In order to calculate the structure adequately, a proportion of the energy consumption of the connected network, cosmos, must also be taken into account, because the connected network is also responsible for security. This proportion is determined on the basis of gas consumption. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital

Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Hydration

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Hydration	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	30747.60000	kWh/a

Qualitative information

S.4 Consensus Mechanism

Hydration operates as a parachain within the Polkadot ecosystem, inheriting its consensus mechanism from Polkadot's relay chain.

S.5 Incentive Mechanisms and Applicable Fees

Hydration's native token, HDX, serves multiple roles within the network, including transaction fee payments and participation in governance decisions. The network implements a single-sided liquidity provisioning model through its Omnipool, allowing users to provide liquidity with a single asset.

S.9 Energy consumption sources and methodologies

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The

information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Kinto

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Kinto	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	30222.00780	kWh/a

Qualitative information

S.4 Consensus Mechanism

Kinto is present on the following networks: Arbitrum, Kinto.

Arbitrum is an optimistic rollup that processes transactions on a Layer 2 network and relies on Ethereum for data availability and settlement. A sequencer orders incoming transactions, executes them and publishes compressed transaction batches to Ethereum. Arbitrum nodes can independently reconstruct and verify the resulting Layer 2 state using the transaction data published on the parent chain. Validators submit assertions representing the state of the network. Under the BoLD dispute protocol, conflicting or incorrect assertions may be challenged and resolved through an interactive fraud-proof process on Ethereum. Once an assertion has been confirmed and the applicable challenge process has been completed, the corresponding Layer 2 state is accepted for settlement purposes.

Kinto operates as an Ethereum Layer 2 network utilizing the Arbitrum Nitro stack, functioning as an optimistic rollup that settles transactions on the Ethereum mainnet.

S.5 Incentive Mechanisms and Applicable Fees

Kinto is present on the following networks: Arbitrum, Kinto.

Transactions on Arbitrum are subject to fees paid in ETH. The total fee generally consists of a Layer 2 execution component, which covers the computational resources required to process the

transaction, and a parent-chain data component, which reflects the cost of publishing compressed transaction data to Ethereum. The amount payable therefore depends on the computational complexity of the transaction, the volume and compressibility of its data and the prevailing cost of data publication on Ethereum. Participants that submit or challenge state assertions under the dispute protocol must provide economic bonds. These bonds are intended to discourage incorrect assertions and compensate successful participants in the dispute process. Withdrawals through the canonical bridge become executable after the relevant Layer 2 state has been confirmed and the applicable challenge period has elapsed.

The token, \$K, serves multiple roles within the Kinto ecosystem, including governance participation and incentivization. The Kinto Network uses the native token \$K to coordinate participation, governance, and resource allocation within its permissioned Layer 2 environment. Incentives are primarily distributed through the Kinto Mining Program, which rewards two categories of participants: users who provide capital to on-chain protocols and developers who build applications that attract and retain liquidity. Transaction fees are paid in ETH, consistent with the Arbitrum stack.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

To determine the energy consumption of a token, the energy consumption of the network(s) arbitrum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Band

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Band	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	28829.77387	kWh/a

Qualitative information

S.4 Consensus Mechanism

Band is present on the following networks: Band, Binance Smart Chain, Ethereum, Fantom, Osmosis.

BandChain operates a Delegated Proof-of-Stake (DPoS) consensus mechanism based on Tendermint Byzantine Fault Tolerance, designed to provide deterministic finality and secure state replication. Consensus participants are validators who bond the native crypto-asset BAND and obtain voting power proportional to their bonded stake, including stake delegated by token holders. Only a limited set of validators, typically the top-ranked participants by stake, are permitted to participate in block production and consensus. Consensus proceeds in rounds consisting of block proposal and voting phases. A block is considered final and irreversibly committed once more than two-thirds of total validator voting power signs the corresponding pre-commit vote. This mechanism provides immediate finality and prevents probabilistic forks. The protocol remains secure provided that less than one-third of validator voting power behaves maliciously or fails. In addition to standard block validation, BandChain employs a validator sampling mechanism for oracle operations, whereby subsets of validators are randomly selected to fulfil data requests, reducing bottlenecks and enhancing decentralisation. Delegators may assign their BAND tokens to validators without transferring custody, thereby participating indirectly in consensus and sharing in associated rewards and risks.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of

decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum’s consensus mechanism and Layer 2 functionality.

Fantom operates on the Lachesis Protocol, an Asynchronous Byzantine Fault Tolerant (aBFT) consensus mechanism designed for fast, secure, and scalable transactions.

Core Components of Fantom’s Consensus:

1. Lachesis Protocol (aBFT):

- Asynchronous and Leaderless: Lachesis allows nodes to reach consensus independently without relying on a central leader, enhancing decentralization and speed.
- DAG Structure: Instead of a linear blockchain, Lachesis uses a Directed Acyclic Graph (DAG) structure, allowing multiple transactions to be processed in parallel across nodes. This structure supports high throughput, making the network suitable for applications requiring rapid transaction processing.

2. Event Blocks and Instant Finality:

- Event Blocks: Transactions are grouped into event blocks, which are validated asynchronously by multiple validators. When enough validators confirm an event block, it becomes part of the Fantom network’s history.
- Instant Finality: Transactions on Fantom achieve immediate finality, meaning they are confirmed and cannot be reversed. This property is ideal for applications requiring fast and irreversible transactions.

Osmosis operates on a Proof of Stake (PoS) consensus mechanism, leveraging the Cosmos SDK and Tendermint Core to provide secure, decentralized, and scalable transaction processing.

Core Components:

- Proof of Stake (PoS): Validators are chosen based on the amount of OSMO tokens they stake or are delegated by other token holders. Validators are responsible for validating transactions, producing blocks, and maintaining network security.
- Cosmos SDK and Tendermint Core: Osmosis uses Tendermint Core for Byzantine Fault Tolerant (BFT) consensus, ensuring fast finality and resistance to attacks as long as less than one-third of validators are malicious.
- Decentralized Governance: OSMO token holders can participate in governance by voting on protocol upgrades and network parameters, fostering a community-driven approach to network development.

S.5 Incentive Mechanisms and Applicable Fees

Band is present on the following networks: Band, Binance Smart Chain, Ethereum, Fantom, Osmosis.

The BandChain network employs an integrated system of economic incentives and penalties to secure its Delegated Proof-of-Stake consensus mechanism and to ensure reliable oracle data provision.

1. Incentive Mechanisms (Rewards) Validators and delegators are rewarded for participating in block production and oracle operations through a combination of inflationary issuance and transaction-related fees. New BAND tokens are issued as block rewards under a dynamic inflation model. The inflation rate adjusts within a predefined range to incentivise staking participation and is designed to target a specific proportion of total supply being bonded. Rewards are distributed to validators and their delegators in proportion to their bonded stake, subject to validator-defined commission rates. Additional rewards may be allocated to participants involved in specialised roles, such as Threshold Signature Scheme operations.
2. Transaction Fees The protocol applies transaction fees to all on-chain operations to prevent network abuse and compensate validators. Fees are determined based on transaction complexity and are paid by the initiating party. In the context of oracle operations, additional fees may be required for accessing premium data sources. For cross-chain requests, fees may be paid by relayer accounts acting on behalf of external users.
3. Fee Distribution and Community Pool Collected transaction fees and newly issued tokens are distributed to validators and delegators. A predefined portion of block rewards is allocated to a community fund pool, which is intended to support long-term ecosystem development and is governed through on-chain governance decisions. In addition, certain fees related to oracle data requests may be allocated directly to data providers or associated service accounts.
4. Penalties and Slashing Bonded BAND tokens serve as economic collateral and are subject to slashing in the event of protocol violations. Validators that engage in safety violations, such as double-signing conflicting blocks, are subject to significant slashing and removal from the validator set. Validators may also be penalised for excessive downtime or failure to fulfil assigned oracle data requests. Jailing mechanisms may temporarily exclude validators from participation until operational requirements are restored. Delegators are exposed to slashing risks through the validators to whom they delegate.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from

22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

Fantom's incentive model promotes network security through staking rewards, transaction fees, and delegation options, encouraging broad participation.

Incentive Mechanisms:

1. Staking Rewards for Validators:

- Earning Rewards in FTM: Validators who participate in the consensus process earn rewards in FTM tokens, proportional to the amount they have staked. This incentivizes validators to actively secure the network.
- Dynamic Staking Rate: Fantom's staking reward rate is dynamic, adjusting based on total FTM staked across the network. As more FTM is staked, individual rewards may decrease, maintaining a balanced reward structure that supports long-term network security.

2. Delegation for Token Holders:

Delegated Staking: Users who do not operate validator nodes can delegate their FTM tokens to validators. In return, they share in the staking rewards, encouraging wider participation in securing the network.

Applicable Fees:

- Transaction Fees in FTM: Users pay transaction fees in FTM tokens. The network's high throughput and DAG structure keep fees low, making Fantom ideal for decentralized applications (dApps) requiring frequent transactions.
- Efficient Fee Model: The low fees and scalability of the network make it cost-effective for users, fostering a favorable environment for high-volume applications.

Osmosis incentivizes validators, delegators, and liquidity providers through a combination of staking rewards, transaction fees, and liquidity incentives.

Incentive Mechanisms:

- Validator Rewards: Validators earn rewards from transaction fees and block rewards, distributed in OSMO tokens, for their role in securing the network and processing transactions. Delegators who stake their OSMO tokens with validators receive a share of these rewards.
- Liquidity Provider Rewards: Users providing liquidity to Osmosis pools earn swap fees and may receive additional incentives in the form of OSMO tokens to encourage liquidity provision.
- Superfluid Staking: Liquidity providers can participate in superfluid staking, staking a portion of their OSMO tokens within liquidity pools. This mechanism allows users to earn staking rewards while maintaining liquidity in the pools

Applicable Fees:

Transaction Fees: Users pay transaction fees in OSMO tokens for network activities, including swaps, staking, and governance participation. These fees are distributed to validators and delegators, incentivizing their continued participation and support for network security.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

To determine the energy consumption of a token, the energy consumption of the network(s) binance_smart_chain, ethereum, fantom, osmosis is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and

the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



U2U Network

U2U | /

Quantitative information

Quantitative sustainability indicators for U2U Network

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	U2U Network	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	28779.01075	kWh/a

Qualitative information

S.4 Consensus Mechanism

U2U Network is present on the following networks: Ethereum, U Two U.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

The U2U Network uses an asynchronous Byzantine Fault Tolerant (aBFT) consensus combined with a Delegated Proof-of-Stake model. This structure enables validator participation through delegation while maintaining deterministic finality. Its protocol is built on a DAG-based architecture that processes transactions in parallel to increase throughput. The design focuses on predictable consensus execution and resilience against faulty nodes.

S.5 Incentive Mechanisms and Applicable Fees

U2U Network is present on the following networks: Ethereum, U Two U.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

The network's incentive structure is based on staking and delegation, where validators and delegators receive protocol-defined rewards for contributing to consensus. Transaction fees are applied to network operations and are used to compensate validators and maintain system integrity. Fee levels and reward parameters are defined within the protocol and may be adjusted through governance. This mechanism aims to ensure stable network operation and alignment between participants and the protocol rules.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary

principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for zkVerify

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	zkVerify	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	28119.60000	kWh/a

Qualitative information

S.4 Consensus Mechanism

zkVerify uses a Tendermint-based Nominated Proof-of-Stake (nPoS) consensus model with a slot time of six seconds, epochs lasting one hour, and eras of six hours. Validators maintain block production and finalization, while the protocol supports a modular design for efficient state verification across chains.

S.5 Incentive Mechanisms and Applicable Fees

The native token (VFY) is used to pay for proof-verification services and transaction submissions. Validators stake VFY to secure the network and earn rewards. The fee market uses an adaptive structure, dynamically adjusting for network demand, and reward mechanisms align validator incentives and governance participation.

S.9 Energy consumption sources and methodologies

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. When

calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for THORChain

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	THORChain	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	26805.60000	kWh/a

Qualitative information

S.4 Consensus Mechanism

THORChain utilizes the Tendermint Byzantine Fault Tolerant (BFT) consensus protocol combined with Proof of Stake (PoS), where validator nodes stake RUNE to secure the network.

Core Components of THORChain's Consensus:

1. Tendermint Consensus Protocol:
THORChain uses the Tendermint consensus protocol, a BFT algorithm that enables high-speed and secure consensus across distributed nodes. This protocol is designed to achieve consensus even if some validators behave maliciously, as long as a majority act honestly.
2. Proof of Stake (PoS) Mechanism:
 - Staking Requirements: Validator nodes are required to stake RUNE, the native token of THORChain, to participate in the consensus process. Staking serves as collateral, incentivizing validators to act honestly and discouraging malicious behavior through economic penalties.
 - Validator Rotation: THORChain regularly rotates its validators, ensuring that only the most actively engaged and well-staked nodes maintain validator status. This competitive environment encourages decentralization, as nodes must continuously stake RUNE to secure a spot in the validator set.
3. Slashing for Security:
Validators can be penalized (slashed) if they fail to fulfill their responsibilities or act dishonestly. Slashing serves as a deterrent against malicious behavior, ensuring validators remain reliable and maintain the integrity of the network.

S.5 Incentive Mechanisms and Applicable Fees

THORChain employs staking rewards, transaction fees, and slashing penalties to maintain security and incentivize validator participation.

Incentive Mechanisms:

1. Staking Rewards:

Validators earn staking rewards for participating in network security and consensus. These rewards are paid in RUNE, THORChain's native token, and are proportional to the amount staked. This incentivizes nodes to lock up RUNE and remain active in the network.

2. Transaction Fees:

Validators also earn a portion of the transaction fees generated within the network. These fees are distributed among validators as additional rewards, providing an ongoing incentive to process transactions efficiently.

3. Decentralization through Node Rotation:

The regular rotation of validator nodes means that participants must continuously compete for positions by staking RUNE. This mechanism enhances network security and promotes decentralization, preventing any single entity from dominating the network.

4. Slashing Mechanism:

To maintain network integrity, THORChain employs a slashing mechanism, penalizing validators that act maliciously or fail to meet their responsibilities. This encourages validators to act in the network's best interest.

Applicable Fees:

Transaction fees on THORChain are paid in RUNE and vary based on network activity and transaction type. These fees help compensate validators and support the network's operational costs.

S.9 Energy consumption sources and methodologies

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for JUNO

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	JUNO	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	26417.91744	kWh/a

Qualitative information

S.4 Consensus Mechanism

JUNO is present on the following networks: Juno, Osmosis.

Juno is a Cosmos SDK-based Layer 1 blockchain that uses the Tendermint Byzantine Fault Tolerant (BFT) consensus mechanism under a Proof-of-Stake model. Validators are selected based on delegated JUNO tokens to produce and finalize blocks.

Osmosis operates on a Proof of Stake (PoS) consensus mechanism, leveraging the Cosmos SDK and Tendermint Core to provide secure, decentralized, and scalable transaction processing.

Core Components:

- Proof of Stake (PoS): Validators are chosen based on the amount of OSMO tokens they stake or are delegated by other token holders. Validators are responsible for validating transactions, producing blocks, and maintaining network security.
- Cosmos SDK and Tendermint Core: Osmosis uses Tendermint Core for Byzantine Fault Tolerant (BFT) consensus, ensuring fast finality and resistance to attacks as long as less than one-third of validators are malicious.
- Decentralized Governance: OSMO token holders can participate in governance by voting on protocol upgrades and network parameters, fostering a community-driven approach to network development.

S.5 Incentive Mechanisms and Applicable Fees

JUNO is present on the following networks: Juno, Osmosis.

Transaction fees are paid in JUNO and distributed among validators and their delegators. JUNO is also used for staking and governance, allowing holders to vote on network proposals.

Osmosis incentivizes validators, delegators, and liquidity providers through a combination of staking rewards, transaction fees, and liquidity incentives.

Incentive Mechanisms:

- Validator Rewards: Validators earn rewards from transaction fees and block rewards, distributed in OSMO tokens, for their role in securing the network and processing transactions. Delegators who stake their OSMO tokens with validators receive a share of these rewards.
- Liquidity Provider Rewards: Users providing liquidity to Osmosis pools earn swap fees and may receive additional incentives in the form of OSMO tokens to encourage liquidity provision.
- Superfluid Staking: Liquidity providers can participate in superfluid staking, staking a portion of their OSMO tokens within liquidity pools. This mechanism allows users to earn staking rewards while maintaining liquidity in the pools

Applicable Fees:

Transaction Fees: Users pay transaction fees in OSMO tokens for network activities, including swaps, staking, and governance participation. These fees are distributed to validators and delegators, incentivizing their continued participation and support for network security.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

To determine the energy consumption of a token, the energy consumption of the network(s) osmosis is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general,

participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Moonriver

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Moonriver	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	26280.00000	kWh/a

Qualitative information

S.4 Consensus Mechanism

Moonriver operates on a Proof of Stake (PoS) consensus mechanism, enhanced by Polkadot's Nominated Proof of Stake (NPoS) model. This structure ensures secure, scalable, and decentralized transaction processing, leveraging the robust Substrate framework.

Core Components:

- Nominated Proof of Stake (NPoS):
Validators are selected through staking by token holders, known as nominators, who delegate their MOVR tokens to trusted validator nodes. Validators with higher stakes and nominations are chosen to validate blocks and secure the network.
- Collator Nodes:
Moonriver employs collator nodes, responsible for aggregating transactions into blocks and submitting them to the Polkadot Relay Chain for final validation. Collators ensure fast block production while relying on Polkadot's shared security.
- Byzantine Fault Tolerance (BFT):
Moonriver integrates BFT properties to handle network disruptions and maintain consensus even if some validators act maliciously or become unavailable.
- Seamless Interoperability:
As a parachain within the Polkadot ecosystem, Moonriver benefits from Polkadot's cross-chain messaging protocols, enabling secure and efficient interoperability with other parachains and external blockchains.

S.5 Incentive Mechanisms and Applicable Fees

Moonriver's incentive model ensures active participation from validators, nominators, and developers while maintaining network security and usability.

Incentive Mechanisms:

- Staking Rewards: Validators and nominators earn MOVR tokens for securing the network and validating transactions.
- Collator Rewards: Collators, who propose blocks, are rewarded with MOVR tokens.
- Inflationary Rewards: New MOVR tokens are minted to fund staking and ecosystem development.
- Developer Incentives: A portion of rewards supports dApp development and ecosystem growth.

Applicable Fees:

- Transaction Fees: Paid in MOVR for transfers and smart contract interactions, distributed to validators and collators.
- Gas Fees: Calculated based on transaction complexity, ensuring predictable costs.
- Fee Burning: A portion of fees is burned, reducing token supply over time to support value retention.

S.9 Energy consumption sources and methodologies

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. Due to the structure of this network, it is not only the mainnet that is responsible for energy consumption. In order to calculate the structure adequately, a proportion of the energy consumption of the connected network, kusama, must also be taken into account, because the connected network is also responsible for security. This proportion is determined on the basis of gas consumption. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Portal To Bitcoin

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Portal To Bitcoin	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	25682.95335	kWh/a

Qualitative information

S.4 Consensus Mechanism

Portal To Bitcoin is present on the following networks: Binance Smart Chain, Ethereum, Portal To Bitcoin.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 "Cabinet" validators and 24 "Candidate" validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice

rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

Portal OS runs a modular validator system combining full nodes for supported chains, a Portal Coordinator for cross-chain messaging and coordination, and a Notary Chain (EVM-based) that orders and finalizes interchain activity.

S.5 Incentive Mechanisms and Applicable Fees

Portal To Bitcoin is present on the following networks: Binance Smart Chain, Ethereum, Portal To Bitcoin.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator

from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

Users pay fees (in PTB or via native assets) for cross-chain swaps and messaging. These fees are split between rewarding validators (via the Notary Chain) and burning or allocating portions for ecosystem sustainability.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

To determine the energy consumption of a token, the energy consumption of the network(s) binance_smart_chain, ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Zeta

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Zeta	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	25537.12062	kWh/a

Qualitative information

S.4 Consensus Mechanism

Zeta is present on the following networks: Ethereum, Zeta.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

ZetaChain is a Layer 1 blockchain built using the Cosmos SDK and employs the CometBFT consensus engine, a variant of Byzantine Fault Tolerant (BFT) consensus. It operates under a Proof-of-Stake (PoS) model, where validators are selected based on the amount of ZETA tokens they stake.

S.5 Incentive Mechanisms and Applicable Fees

Zeta is present on the following networks: Ethereum, Zeta.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

The native token, ZETA, serves multiple functions within the ZetaChain ecosystem, including transaction fee payments, staking, and governance participation. Validators and delegators earn rewards in ZETA tokens for securing the network through staking.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Bittensor

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Bittensor	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	25228.80000	kWh/a

Qualitative information

S.4 Consensus Mechanism

Bittensor employs a Proof-of-Stake consensus mechanism tailored for integrating blockchain technology with decentralized AI, ensuring secure, efficient, and reliable contributions from its participants.

Proof of Stake (PoS) with Neural Consensus:

- Bittensor operates on a PoS consensus model, where validators are selected based on the amount of TAO tokens staked. Validators secure the network by producing and validating blocks, ensuring transaction integrity.
- Neural Consensus Integration: A unique feature of Bittensor is its neural consensus, which evaluates the quality of work performed by AI models on the network. Nodes are incentivized to contribute meaningful computations for tasks like AI training, which are validated through peer review and network-wide voting.
- Dynamic Validator Selection: The network dynamically adjusts validator participation, prioritizing nodes that contribute both computational and staking resources effectively.
- Scalability and Security: The combined PoS and neural consensus model ensures scalability for AI-centric workloads while maintaining blockchain-level security.

S.5 Incentive Mechanisms and Applicable Fees

Bittensor incentivizes network participants through token rewards for securing the network and contributing to its AI capabilities, with a fee structure designed to sustain network operations and encourage participation.

Incentive Mechanism:

- TAO Rewards for Validators: Validators earn TAO tokens as rewards for securing the network, validating transactions, and maintaining blockchain integrity. Rewards are distributed based on the validator's staked TAO tokens and performance in the consensus process.
- AI Contribution Rewards: Nodes contributing to the network's AI computations (e.g., training models) are rewarded in TAO tokens. Rewards are determined by the quality and relevance of contributions, as evaluated through the neural consensus mechanism.
- Delegation Rewards: TAO holders who delegate their tokens to validators earn a share of staking rewards, encouraging broader participation in network security and governance.
- Dynamic Incentive Structure: Rewards are dynamically allocated based on network activity and AI workloads, promoting sustained contribution and high-quality participation.

Applicable Fees:

- Transaction Fees: Users pay transaction fees in TAO tokens for processing transactions on the network. Fees are distributed to validators as additional compensation.
- AI Service Fees: Applications utilizing Bittensor's AI services pay fees in TAO tokens, incentivizing nodes to perform computations and contribute resources.
- Low-Cost Fee Model: The network employs a cost-efficient fee structure to attract developers and users while ensuring sustainability for validators and contributors.

S.9 Energy consumption sources and methodologies

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for PEAQ

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	PEAQ	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	24966.00000	kWh/a

Qualitative information

S.4 Consensus Mechanism

The peaq blockchain operates on a modified version of the Nominated Proof of Stake (NPoS) consensus mechanism. In this system, validators are responsible for block production and transaction validation, while nominators support trustworthy validators by staking their tokens.

The mechanism is designed to balance decentralization and performance, selecting validators based on their stake and reputation. It emphasizes security and scalability, ensuring resistance to malicious actors while maintaining high throughput.

S.5 Incentive Mechanisms and Applicable Fees

peaq's economic model is tailored to support the machine economy through its native tokens, \$PEAQ and \$MINT. Validators and nominators earn rewards for their contributions to network security and operations, incentivizing active participation in the consensus process. The network also rewards users and devices participating in machine-driven ecosystems, fostering innovation and engagement.

Transaction fees are designed to be minimal, enabling seamless microtransactions and accessibility for various use cases.

S.9 Energy consumption sources and methodologies

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Linea

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Linea	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	24437.72411	kWh/a

Qualitative information

S.4 Consensus Mechanism

Linea is present on the following networks: Ethereum, Linea.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

The Linea Network uses a Zero-Knowledge Rollup (ZK-Rollup) architecture with a zkEVM for Ethereum compatibility, and its consensus is derived from Ethereum's own proof-of-stake security. While the Network has components like a sequencer for ordering transactions and a coordinator for network management, its consensus mechanism is fundamentally linked to the proof and verification process of zero-knowledge proofs and the security of the Ethereum mainnet. Instead of a typical

decentralized consensus on a separate blockchain, the Network inherits its security and state finality from Ethereum.

S.5 Incentive Mechanisms and Applicable Fees

Linea is present on the following networks: Ethereum, Linea.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

Like Ethereum, the Network uses a gas system, where gas is the unit of computational effort required to process a transaction. All gas fees on the Network are paid in Ether (ETH). The Network has a base fee that is designed to stabilize at 7 wei. The base fee still decreases or increases based on network traffic, similar to Ethereum, but it does not go below 7 wei. The Network does not require token staking for transaction validation purposes and thus provides no staking rewards. It does not offer incentives for running a full network node. It does charge fees collected by the sequencer for transaction processing. Those fees are paid in ETH, 20% of which are immediately burned while the remaining 80% are converted to Tokens and then burned.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum, linea is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Chiliz

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Chiliz	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	23160.70358	kWh/a

Qualitative information

S.4 Consensus Mechanism

Chiliz is present on the following networks: Chiliz, Ethereum.

The Chiliz Chain operates on a Proof of Staked Authority (PoSA) consensus model, a hybrid that combines Proof of Stake (PoS) and Proof of Authority (PoA) to secure the network through both economic and reputational incentives.

Core Components:

- Proof of Staked Authority (PoSA) Validator Selection: Validators are selected based on their stake of CHZ tokens and their reputation within the network, enhancing security and trustworthiness.
- Collateral Requirement: Validators must lock a portion of CHZ as collateral, which can be slashed if they act maliciously or fail to meet network standards, ensuring alignment with network security.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in

certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Chiliz is present on the following networks: Chiliz, Ethereum.

Chiliz incentivizes validators and delegators to contribute to network security through rewards and transaction fees in CHZ.

Incentive Mechanisms:

- Staking Rewards Validator Rewards: Validators earn CHZ tokens for validating transactions and maintaining network integrity.
- Delegator Rewards: CHZ holders who delegate their tokens to validators share in staking rewards, allowing passive participation in network security.

Applicable Fees:

Transaction Fees CHZ-Based Fees: Transaction fees are paid in CHZ and are distributed to validators as additional compensation, supporting validator incentives and covering network operational costs.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on

assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Union

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Union	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	22370.77581	kWh/a

Qualitative information

S.4 Consensus Mechanism

Union is present on the following networks: Binance Smart Chain, Ethereum, Union.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon

Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

Union uses CometBLS, an enhanced version of the Tendermint BFT protocol optimized for zero-knowledge proofs and cross-chain interoperability. It incorporates BLS signature aggregation and combines elements from Cosmos and Polkadot to support efficient validator coordination across many chains and validators.

S.5 Incentive Mechanisms and Applicable Fees

Union is present on the following networks: Binance Smart Chain, Ethereum, Union.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

Union applies a dual-layer incentive system: validators earn block rewards and transaction fees based on delegated stake. The network features an adaptive fee model derived from EIP-1559, adjusting costs dynamically according to network demand, while enabling rewards for participants involved in proving, relaying, and governance across chains.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

To determine the energy consumption of a token, the energy consumption of the network(s) binance_smart_chain, ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Nano XNO

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Nano XNO	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	21549.60000	kWh/a

Qualitative information

S.4 Consensus Mechanism

Nano employs a unique consensus model called Open Representative Voting (ORV), a variant of delegated Proof of Stake (dPoS), and utilizes a block-lattice structure for high-speed, efficient transaction processing.

Core Components:

1. Open Representative Voting (ORV):
 - Representative Selection: Each Nano account holder can choose a representative to vote on their behalf in network consensus. Representatives are nodes with delegated voting power, which determines their influence in resolving transaction conflicts.
 - Fast, Low-Energy Voting: Representatives vote on the validity of transactions, achieving consensus without intensive mining or staking, which minimizes energy usage and allows for quick transaction finality.
2. Block-Lattice Structure:

Each account has its own chain, allowing asynchronous updates, nearly instant transfers, and high scalability.
3. Spam Prevention:

Senders perform a small PoW computation to initiate transactions, deterring spam while remaining lightweight for legitimate users.

S.5 Incentive Mechanisms and Applicable Fees

Nano's design allows for feeless transactions, emphasizing efficiency and accessibility without traditional financial incentives for validators.

Incentive Mechanisms:

Community and Organizational Incentives for Representatives:

Non-Financial Motivation: Representatives, often exchanges, businesses, or community members, participate in consensus to support the network's stability and growth rather than for direct financial rewards.

Applicable Fees:

1. Feeless Transactions:

No Transaction Fees: Nano's architecture enables feeless transactions, allowing for high-frequency usage without cost to users.

2. Anti-Spam Measures:

Small PoW for Transaction Initiation: Users perform a minimal PoW computation to prevent spam, ensuring network resources are reserved for legitimate transactions without imposing fees.

S.9 Energy consumption sources and methodologies

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Metis Token

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Metis Token	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	21342.21894	kWh/a

Qualitative information

S.4 Consensus Mechanism

Metis Token is present on the following networks: Ethereum, Metis.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

Metis is an Ethereum Layer-2 scaling solution that utilizes Optimistic Rollup technology to enhance transaction throughput and reduce costs. In this architecture, a sequencer is responsible for aggregating and submitting batches of transactions to the Ethereum mainnet. Metis is transitioning towards a decentralized sequencer model, incorporating a Proof of Stake (PoS) consensus layer based on Tendermint.

This model involves multiple sequencers participating in transaction processing, with roles assigned through a staking mechanism. The decentralized sequencer system is designed to prevent single points of failure and ensure continuous network uptime.

S.5 Incentive Mechanisms and Applicable Fees

Metis Token is present on the following networks: Ethereum, Metis.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

Within the Metis ecosystem, users pay transaction fees in the form of METIS tokens for operations conducted on the Layer-2 network. These fees are distributed among sequencers and validators as rewards for their participation in processing transactions and maintaining network security.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. Due to the structure of this network, it is not only the mainnet that is responsible for energy consumption. In order to calculate the structure adequately, a proportion of the energy consumption of the connected network, ethereum, must also be taken into account, because the connected network is also responsible for security. This proportion is determined on the basis of gas consumption. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum, metis is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally

Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Espresso

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Espresso	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	21026.21006	kWh/a

Qualitative information

S.4 Consensus Mechanism

Espresso is present on the following networks: Arbitrum, Espresso, Ethereum.

Arbitrum is an optimistic rollup that processes transactions on a Layer 2 network and relies on Ethereum for data availability and settlement. A sequencer orders incoming transactions, executes them and publishes compressed transaction batches to Ethereum. Arbitrum nodes can independently reconstruct and verify the resulting Layer 2 state using the transaction data published on the parent chain. Validators submit assertions representing the state of the network. Under the BoLD dispute protocol, conflicting or incorrect assertions may be challenged and resolved through an interactive fraud-proof process on Ethereum. Once an assertion has been confirmed and the applicable challenge process has been completed, the corresponding Layer 2 state is accepted for settlement purposes.

Espresso operates as a shared sequencing and data availability layer designed for rollups. It uses a Byzantine Fault Tolerant (BFT) Proof-of-Stake consensus protocol in which validators stake the native token to participate in block ordering and finality. The network provides decentralized transaction sequencing and confirmation services that can be used by multiple rollups, separating execution from ordering while maintaining cryptographic verifiability.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice

rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Espresso is present on the following networks: Arbitrum, Espresso, Ethereum.

Transactions on Arbitrum are subject to fees paid in ETH. The total fee generally consists of a Layer 2 execution component, which covers the computational resources required to process the transaction, and a parent-chain data component, which reflects the cost of publishing compressed transaction data to Ethereum. The amount payable therefore depends on the computational complexity of the transaction, the volume and compressibility of its data and the prevailing cost of data publication on Ethereum. Participants that submit or challenge state assertions under the dispute protocol must provide economic bonds. These bonds are intended to discourage incorrect assertions and compensate successful participants in the dispute process. Withdrawals through the canonical bridge become executable after the relevant Layer 2 state has been confirmed and the applicable challenge period has elapsed.

Transaction and sequencing fees are paid in the native token and distributed to validators according to their stake and participation. Validators are required to stake tokens to secure the network and may be subject to penalties for misbehavior. Token holders can delegate stake to validators and share in rewards. The fee structure supports network operations and validator compensation without embedding application-specific incentives at the base layer.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These

assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

To determine the energy consumption of a token, the energy consumption of the network(s) arbitrum, ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Songbird

SGB | 1GB15J049

Quantitative information

Quantitative sustainability indicators for Songbird

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Songbird	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	21024.00000	kWh/a

Qualitative information

S.4 Consensus Mechanism

Songbird is a decentralized network designed to act as a canary network for the Flare blockchain, enabling the testing of features before they are deployed on the main network. It utilizes the Avalanche consensus mechanism, which combines elements of classical and Nakamoto-style consensus to achieve high throughput and low-latency finality.

S.5 Incentive Mechanisms and Applicable Fees

Songbird incentivizes network participants, particularly validators, by rewarding them with native tokens for securing the network and validating transactions. Validators earn rewards based on their contribution to the consensus process, which helps maintain the integrity and security of the network. Additionally, users can participate in staking to earn rewards, further supporting the network's operations. The fee structure on Songbird is designed to be low and efficient, with transaction fees paid by users for processing their transactions. These fees are used to incentivize validators, cover the operational costs of the network, and ensure the ongoing development and stability of the ecosystem.

S.9 Energy consumption sources and methodologies

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These

assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Karura

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Karura	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	20498.40000	kWh/a

Qualitative information

S.4 Consensus Mechanism

Karura is a parachain on the Kusama network and inherits its consensus mechanism from Kusama's relay chain.

S.5 Incentive Mechanisms and Applicable Fees

The native token of the network, KAR, is used for transaction fees, governance, and protocol operations. Users can participate in governance by voting on proposals with KAR. Fees on Karura follow Kusama's weight-based model and are paid in KAR.

S.9 Energy consumption sources and methodologies

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The

information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for ALTHEA

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	ALTHEA	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	20104.20000	kWh/a

Qualitative information

S.4 Consensus Mechanism

Althea L1 is a CosmosSDK/EVM-based blockchain secured by a standard Proof-of-Stake BFT consensus mechanism.

S.5 Incentive Mechanisms and Applicable Fees

Bandwidth providers ("routers") and operators earn stablecoin payments based on actual data usage, secured and settled on-chain. ALTHEA token stakers and delegators earn rewards from these stablecoin transaction fees as well as inflation-based block rewards. A portion of each transaction fee is allocated to validators, while the remainder supports token holder incentives and governance participation via staking and proposal voting.

S.9 Energy consumption sources and methodologies

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital

Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Shiden Network

SDN | 2HQFBDLXV

Quantitative information

Quantitative sustainability indicators for Shiden Network

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Shiden Network	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	20104.20000	kWh/a

Qualitative information

S.4 Consensus Mechanism

Shiden operates as a parachain within the Kusama network. In this model, SDN token holders nominate validators responsible for block production and network security.

S.5 Incentive Mechanisms and Applicable Fees

The native token, SDN, serves multiple roles within the Shiden ecosystem. It is used for staking to support the NPoS consensus, paying transaction fees, and participating in governance decisions.

S.9 Energy consumption sources and methodologies

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on

assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Boba Token

BOBA | L7CKSKP8K

Quantitative information

Quantitative sustainability indicators for Boba Token

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Boba Token	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	19753.74801	kWh/a

Qualitative information

S.4 Consensus Mechanism

Boba Token is present on the following networks: Boba Network, Ethereum.

Boba Network operates as an Ethereum Layer 2 solution using an Optimistic Rollup architecture to improve scalability and reduce transaction costs.

Core Components:

- Optimistic Rollup: Processes transactions off-chain, aggregates them, and submits condensed proofs to the Ethereum mainnet for finalization.
- Sequencer Role: A sequencer organizes and bundles transactions off-chain before submitting the batched data to Ethereum. This enhances transaction throughput and reduces latency.
- Fraud Proofs: Maintains security by allowing users to challenge suspicious transactions. If a transaction is deemed fraudulent, it is corrected on the mainnet, ensuring integrity.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the

canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Boba Token is present on the following networks: Boba Network, Ethereum.

The Boba Network incentivizes participation and ensures affordability with flexible fee payment options and staking rewards.

Incentive Mechanisms:

- Staking Rewards: BOBA token holders can stake their tokens to participate in governance and earn staking rewards, encouraging long-term engagement and network growth.
- Sequencer Revenue: The sequencer earns fees for bundling and submitting transactions, incentivizing efficient network operation.

Applicable Fees:

- Dual-Fee Token System: Users can pay transaction fees in BOBA tokens or the base blockchain token (e.g., ETH), offering flexibility.
- Low Transaction Costs: By batching transactions off-chain, Boba significantly reduces the gas fees users pay compared to directly using the Ethereum mainnet.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. Due to the structure of this network, it is not only the mainnet that is responsible for energy consumption. In order to calculate the structure adequately, a proportion of the energy consumption of the

connected network, ethereum, must also be taken into account, because the connected network is also responsible for security. This proportion is determined on the basis of gas consumption. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Mezo

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Mezo	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	19712.35243	kWh/a

Qualitative information

S.4 Consensus Mechanism

Mezo is present on the following networks: Base, Ethereum, Mezo.

Base does not operate its own consensus mechanism or decentralised validator set comparable to a Layer-1 blockchain. As an optimistic rollup Layer-2 network, Base relies on Ethereum's Proof-of-Stake consensus for the finality and settlement of data and state commitments posted to Ethereum Layer 1. Transaction ordering on Base is performed by a sequencer, currently operated by Coinbase. This sequencing function provides transaction ordering and execution on the Layer-2 network but does not constitute a decentralised consensus mechanism. The validity of Layer-2 state transitions is supported by an optimistic fault-proof mechanism, under which incorrect state commitments may be challenged during the applicable dispute period. Accordingly, Base's security model depends on Ethereum Layer 1 for settlement and finality, while Layer-2 transaction ordering remains dependent on the sequencer.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the

canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

Mezo combines elements of Proof-of-Authority (PoA) and Proof-of-Stake (PoS). A set of authorized validator nodes is responsible for block production and network operation, while staking mechanisms allow participants to support validators and contribute to security.

S.5 Incentive Mechanisms and Applicable Fees

Mezo is present on the following networks: Base, Ethereum, Mezo.

Base does not have a native protocol token and does not operate a staking, validator reward or token issuance mechanism. Transaction fees on Base are paid in ETH. The economic incentives within the network are primarily related to transaction processing and network security. Transactions are executed on Base and periodically submitted to Ethereum Layer 1 in batches. As the cost of a Layer-1 submission is shared among multiple Layer-2 transactions, the average transaction cost per transaction may be lower than executing the same transactions directly on Ethereum Layer 1. The integrity of withdrawals from Base is supported by a fault-proof mechanism. Withdrawals are subject to a dispute period during which participants may challenge incorrect state commitments. The dispute process incorporates economic incentives intended to encourage honest behaviour and discourage invalid claims.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

The native token is used for staking, transaction fees, and validator incentives. Validators receive rewards for maintaining network operations, while delegators can earn a share of these rewards by supporting validators.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The

energy consumption of the hardware devices was measured in certified test laboratories. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

To determine the energy consumption of a token, the energy consumption of the network(s) base, ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for GUNZ

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	GUNZ	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	19233.74854	kWh/a

Qualitative information

S.4 Consensus Mechanism

GUNZ is present on the following networks: Avalanche, Gunz.

The Avalanche C-Chain uses the Snowman++ consensus mechanism, which is Avalanche's consensus model for linear blockchains and is implemented through the ProposerVM wrapper. Under this model, validators repeatedly query a small random subset of other validators and converge on a preferred block once the required confidence thresholds are met. Only Primary Network validators are entitled to validate the C-Chain. To participate as a validator on Avalanche mainnet, a node must stake a minimum number of token. Token holders may also participate indirectly by delegating an existing validator. Validator identity and admission to staking require the relevant staking credentials, including BLS proofs of possession under the current staking framework. For block production, Snowman++ uses stake-weighted proposer windows. Through the ProposerVM, block-building opportunities are assigned to proposers in 5-second windows, after which block production may fall back more broadly to validators if necessary. This mechanism is intended to regulate block production while preserving network liveness. Consensus voting itself remains based on repeated sub-sampled polling rather than fixed validator committees. Avalanche documentation describes the finality model as sub-second and treated by the protocol as final and irreversible once accepted, while noting that safety is probabilistic in the formal sense because the probability of conflicting acceptance can be reduced to an arbitrarily low level through the protocol parameters. The protocol does not rely on slashing of staked principal. Instead, validator reward eligibility depends on compliance with protocol conditions, including uptime requirements.

GUNZ is a Layer-1 blockchain specifically designed for gaming, operating as an Avalanche subnet and utilizing the Snowman++ consensus protocol. This setup enables sub-second transaction finality and supports over 4,500 transactions per second, ensuring a seamless gaming experience. The network employs a permissioned model for smart contract deployment, allowing only authorized addresses to implement code, which enhances security and stability. Validators are represented by Validator NFTs, which are required to participate in the network's consensus process. These NFTs come in various rarities, each offering different levels of rewards and responsibilities within the network.

S.5 Incentive Mechanisms and Applicable Fees

GUNZ is present on the following networks: Avalanche, Gunz.

The Avalanche C-Chain is secured economically through the native AVAX token. Validator incentives are based primarily on staking rewards, not on redistribution of C-Chain transaction fees. A fixed amount of 360 million AVAX was minted at genesis, while additional AVAX is minted over time as validator rewards, subject to Avalanche's capped token supply framework. Validator rewards are paid at the end of the staking period and are determined by factors such as the validator's stake and compliance with staking conditions. Unlike some proof-of-stake systems, the Avalanche Primary Network does not use slashing of bonded principal as an ordinary penalty mechanism. Instead, the main protocol-level economic consequence for underperformance is the loss of reward eligibility. Where a validator fails to satisfy the applicable uptime requirement during its staking term, that validator does not receive the corresponding staking reward. Transaction fees apply on the C-Chain for transfers and smart-contract execution. The fee model follows EIP-1559 logic, meaning that transactions are priced through a dynamic base fee mechanism. In contrast to Ethereum's validator tip model, C-Chain transaction fees are burned rather than distributed to validators. This means that C-Chain fees function as a supply-reduction mechanism and are intended in part to offset inflation arising from the minting of validator rewards. In addition to ordinary transaction and smart-contract execution fees, Avalanche documentation also recognises protocol fees in connection with other network operations on other chains of the Primary Network, such as certain import or export operations and staking-related actions. However, for the C-Chain itself, the core applicable fee category is the gas fee for transaction inclusion and contract execution, and those fees are handled through the protocol burn mechanism rather than paid to validators or a treasury.

The GUNZ ecosystem is powered by its native token, \$GUN, which serves multiple functions including transaction fees, staking, and governance. Players use \$GUN for various in-game transactions such as purchasing NFT items, customization options, and subscriptions. Validators earn \$GUN rewards for processing transactions and decoding in-game items, with the amount of rewards influenced by the rarity of their Validator NFTs. Transaction fees within the network are paid in \$GUN and are designed to be minimal to encourage user participation.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we

update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

To determine the energy consumption of a token, the energy consumption of the network(s) avalanche is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for OG

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	OG	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	18923.02539	kWh/a

Qualitative information

S.4 Consensus Mechanism

OG is present on the following networks: Binance Smart Chain, Ethereum, Zero G.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon

Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

0G Chain separates consensus and execution into modular layers. The network uses an optimized version of CometBFT (byzantine fault-tolerant Proof-of-Stake) for the consensus layer, with tuned parameters to support high throughput and sub-second finality. Validators stake the native token and are selected via VRF (Verifiable Random Function) to produce blocks and participate in consensus.

S.5 Incentive Mechanisms and Applicable Fees

0G is present on the following networks: Binance Smart Chain, Ethereum, Zero G.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator

from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

Validators receive rewards from block issuance and transaction fees paid in the network's native token. Users pay transaction (gas) fees in that token. A portion of collected fees is burned to introduce deflationary pressure, while the remainder is distributed to validators as compensation. Token holders can stake and delegate, thus earning rewards proportional to their participation and supporting network security.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

To determine the energy consumption of a token, the energy consumption of the network(s) binance_smart_chain, ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Gensyn

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Gensyn	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	17909.45418	kWh/a

Qualitative information

S.4 Consensus Mechanism

Gensyn is present on the following networks: Ethereum, Gensyn.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

Gensyn operates on a custom EVM Layer-2 rollup built with the OP Stack (Bedrock). As a Layer 2 network, it relies on the underlying base layer for settlement and security, while providing its own coordination and execution environment for market activity, identity, and on-chain interactions.

S.5 Incentive Mechanisms and Applicable Fees

Gensyn is present on the following networks: Ethereum, Gensyn.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

Participants in the Gensyn network are expected to receive rewards for contributing compute resources, validating workloads, and supporting network operations. Incentives are structured around successful task execution and verification, while fees are associated with submitting and processing machine learning jobs on the network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Nodle

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Nodle	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	17843.40000	kWh/a

Qualitative information

S.4 Consensus Mechanism

Nodle runs as a parachain on Polkadot and uses Polkadot's consensus. It uniquely integrates a "Proof of Connectivity" model, where smartphones act as edge nodes relaying IoT data via Bluetooth.

S.5 Incentive Mechanisms and Applicable Fees

Participants earn NODL tokens by contributing connectivity through their devices. Transaction fees are minimal and paid in NODL, with the token also used for governance.

S.9 Energy consumption sources and methodologies

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on

assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Matchain

MAT | RKVDPH4BZ

Quantitative information

Quantitative sustainability indicators for Matchain

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Matchain	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	17607.60000	kWh/a

Qualitative information

S.4 Consensus Mechanism

Matchain is an EVM-compatible Layer 2 rollup built using the OP Stack, with BNB Smart Chain serving as its underlying Layer 1 and data availability layer. Transactions are ordered and executed on Matchain by the rollup infrastructure, while transaction data and state commitments are submitted to BNB Smart Chain.

S.5 Incentive Mechanisms and Applicable Fees

BNB is the native gas asset on Matchain and is used to pay transaction fees. Each transaction includes an L2 execution fee for processing on Matchain and an L1 security fee reflecting the cost of publishing the relevant data to the underlying Layer 1.

S.9 Energy consumption sources and methodologies

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital

Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Stride

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Stride	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	16030.80000	kWh/a

Qualitative information

S.4 Consensus Mechanism

Stride is a liquid staking protocol within the Cosmos ecosystem that initially operated with its own validator set using the Tendermint Byzantine Fault Tolerant (BFT) consensus mechanism. In July 2023, Stride transitioned to Interchain Security (ICS), becoming a consumer chain secured by the Cosmos Hub.

S.5 Incentive Mechanisms and Applicable Fees

The native token of the Stride Network, STRD, is used for protocol governance, value capture, and community incentives. STRD holders can participate in on-chain governance, influencing decisions such as protocol upgrades and strategic direction.

S.9 Energy consumption sources and methodologies

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital

Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Movement

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Movement	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	15957.95289	kWh/a

Qualitative information

S.4 Consensus Mechanism

Movement is present on the following networks: Ethereum, Movement.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

Movement L1 uses a Proof-of-Stake consensus mechanism based on a Jolteon-style Byzantine Fault Tolerant (BFT) protocol. Validators participate in block production and finalization according to their stake, with deterministic leader selection and a dynamic validator set.

S.5 Incentive Mechanisms and Applicable Fees

Movement is present on the following networks: Ethereum, Movement.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

The MOVE token is used for transaction fees, staking, and network incentives. Validators and delegators can receive staking rewards for participating in network security, with rewards determined by stake and validator performance.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum, movement is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Basilisk

BSX | /

Quantitative information

Quantitative sustainability indicators for Basilisk

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Basilisk	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	13797.00000	kWh/a

Qualitative information

S.4 Consensus Mechanism

Basilisk operates as a parachain within the Kusama network, utilizing the shared security model provided by Kusama's relay chain validators.

S.5 Incentive Mechanisms and Applicable Fees

Basilisk uses its native token, BSX, to facilitate core network functions such as transaction fee payments and governance.

S.9 Energy consumption sources and methodologies

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on

assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Plasma

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Plasma	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	13402.80000	kWh/a

Qualitative information

S.4 Consensus Mechanism

Plasma Chain uses PlasmaBFT, a consensus protocol based on Fast HotStuff with pipelined execution. Validators are selected through a simplified Proof-of-Stake mechanism and participate in block production and finalization. Misbehavior does not lead to full slashing of stake but results in reduced rewards.

S.5 Incentive Mechanisms and Applicable Fees

Validators receive a share of transaction fees and protocol rewards for signing blocks. If validators fail to participate correctly, their reward share is reduced. The protocol is designed to balance participation incentives while limiting financial penalties.

S.9 Energy consumption sources and methodologies

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital

Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.


Astar

ASTR | 87L5SX99N

Quantitative information

Quantitative sustainability indicators for Astar

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Astar	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	13140.00000	kWh/a

Qualitative information

S.4 Consensus Mechanism

Astar uses a hybrid consensus mechanism that combines Proof of Stake (PoS) and Delegated Proof of Stake (DPoS), with the added feature of Sharded Multichain capabilities. The primary goal is to provide a scalable, interoperable, and decentralized platform for building decentralized applications (dApps), which can run on multiple blockchains in parallel.

Key Features of Astar's Consensus Mechanism:

1. **Proof of Stake (PoS):** In Astar, validators participate by staking ASTR tokens, the native currency of the network. The more tokens staked, the higher the chances of being selected as a validator. Validators are responsible for validating transactions and securing the network. Validators receive block rewards for their efforts, which are paid in ASTR tokens.
2. **Delegated Proof of Stake (DPoS):** Astar incorporates DPoS to allow ASTR token holders to vote for validators. Token holders delegate their voting power to trusted validators, who then produce blocks and validate transactions. This ensures greater decentralization by allowing the community to have a direct say in who validates the network. Delegators receive a share of the block rewards earned by their selected validators.
3. **Sharded Multichain:** Astar's consensus mechanism allows for multichain execution via Parachains in the Polkadot ecosystem, enabling Astar to process multiple parallel chains and increase scalability. This sharding mechanism ensures that Astar can scale effectively, maintaining high throughput while decentralizing the network.

4. Finality: Astar leverages Polkadot's GRANDPA (GHOST-based Recursive Ancestor Deriving Prefix Agreement) finality gadget for fast and deterministic finality. Once a block is finalized, it is irreversible, ensuring the integrity and security of transactions.

S.5 Incentive Mechanisms and Applicable Fees

Astar incentivizes network participation through block rewards, transaction fees, and staking rewards while encouraging governance via delegated voting.

Incentive Mechanism:

1. Staking Rewards: Validators earn ASTR tokens for validating transactions and securing the network. The more tokens staked, the higher the chances of validating blocks.
2. Delegated Proof of Stake (DPoS): ASTR token holders can delegate their tokens to validators, sharing in the rewards based on the performance of their chosen validators.
3. Cross-Chain dApp Rewards: Developers deploying dApps on Astar earn rewards for using the network's multichain capabilities.
4. Governance Participation: ASTR token holders participate in on-chain governance to vote on proposals and protocol changes.

Applicable Fees:

1. Transaction Fees: Users pay fees in ASTR tokens for transactions. These are collected by validators who process the transactions.
2. dApp Execution Fees: Developers pay for smart contract execution based on resource demands.
3. Cross-Chain Fees: Additional fees apply for asset transfers and interactions between different blockchain networks.
4. Parachain Slot Fees: Astar incurs fees for its parachain slot on the Polkadot network to ensure interoperability.

S.9 Energy consumption sources and methodologies

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. Due to the structure of this network, it is not only the mainnet that is responsible for energy consumption. In order to calculate the structure adequately, a proportion of the energy consumption of the connected network, polkadot, must also be taken into account, because the connected network is also responsible for security. This proportion is determined on the basis of gas consumption. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Altair

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Altair	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	13008.60000	kWh/a

Qualitative information

S.4 Consensus Mechanism

Altair operates as a parachain within the Kusama network, leveraging Kusama's shared security model. As a parachain, Altair benefits from the relay chain's validator set for consensus, ensuring interoperability and security within the Kusama ecosystem.

S.5 Incentive Mechanisms and Applicable Fees

The native token of the Altair network, AIR, serves multiple roles, including transaction fee payments, staking, and governance participation. Token holders can stake AIR to participate in the network's consensus mechanism by nominating validators, thereby contributing to network security. Stakers and validators receive rewards in AIR tokens, incentivizing active participation. Additionally, AIR tokens are used to pay transaction fees within the network.

S.9 Energy consumption sources and methodologies

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. When

calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Analog

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Analog	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	13008.60000	kWh/a

Qualitative information

S.4 Consensus Mechanism

Analog is present on the following networks: Analog, Ethereum.

Analog operates as a Layer-0 blockchain protocol designed to facilitate interoperability across diverse blockchain networks. Its architecture is built upon the Substrate SDK, enabling modular development and integration capabilities. The core of Analog's consensus mechanism is the Proof-of-Time (PoT) protocol, which selects validators based on a combination of fixed staking amounts and a ranking score derived from their historical performance and reliability.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Analog is present on the following networks: Analog, Ethereum.

The native token of the Analog Network, ANLOG, serves multiple functions, including transaction fee payments, staking, and governance participation. Validators, referred to as Time Nodes, are rewarded with ANLOG tokens for their role in securing the network and validating transactions.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



KiiChain Token

KII | B9XWQQWQ3

Quantitative information

Quantitative sustainability indicators for KiiChain Token

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	KiiChain Token	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	13008.60000	kWh/a

Qualitative information

S.4 Consensus Mechanism

KiiChain is a Cosmos SDK-based Layer 1 blockchain using Proof-of-Stake and CometBFT consensus. Validators participate in block proposal and validation based on the KII stake delegated to them, while token holders can delegate their KII to validators without operating a node.

S.5 Incentive Mechanisms and Applicable Fees

Validators and delegators receive KII rewards for staking and participating in network consensus, with validators able to charge commissions on rewards allocated to their delegators. Transaction fees are denominated in KII and distributed through the network's fee and reward mechanisms.

S.9 Energy consumption sources and methodologies

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we

update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Livepeer

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Livepeer	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	11087.25001	kWh/a

Qualitative information

S.4 Consensus Mechanism

Livepeer is present on the following networks: Ethereum, Harmony One.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

Harmony operates on a consensus mechanism called Effective Proof of Stake (EPoS), designed to balance validator influence and enhance network security while improving transaction scalability.

Core Components:

1. Effective Proof of Stake (EPoS):

- Validator Diversity: EPoS allows a large number of validators to participate and limits the influence of high-stake validators, promoting decentralization and preventing stake centralization.
- Staking Across Shards: Multiple validators compete within each shard, distributing staking power more broadly and enhancing network security.

2. Sharding with PBFT Finality:

- Parallel Transaction Processing: Harmony's four shards enable independent processing of transactions and smart contracts, enhancing scalability and throughput.
- Fast Finality with PBFT: Each shard uses a modified Practical Byzantine Fault Tolerance (PBFT) model, ensuring immediate finality once blocks are validated and achieving high transaction speeds.

S.5 Incentive Mechanisms and Applicable Fees

Livepeer is present on the following networks: Ethereum, Harmony One.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

Harmony incentivizes validators and delegators to participate in network security and performance through staking rewards, transaction fees, and a unique reward structure promoting decentralization.

Incentive Mechanisms:

1. Staking Rewards for Validators and Delegators:

ONE Token Rewards: Validators earn ONE tokens for validating transactions and securing the network, with a share of these rewards distributed to delegators based on the amount staked.

2. Decentralization Penalty for High Stake:

Reward Adjustment for Large Stakeholders: Validators with an excessive delegated stake experience reduced rewards, preventing centralization and encouraging a fair distribution of staking power.

Applicable Fees:

1. Transaction Fees:

Harmony charges minimal transaction fees in ONE tokens, benefiting high-frequency applications and providing validators with additional rewards.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum, harmony_one is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Wrapped BTC

WBTC | Z1K7V8BV8

Quantitative information

Quantitative sustainability indicators for Wrapped BTC

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Wrapped BTC	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	10927.92782	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Katana

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Katana	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	10643.44778	kWh/a

Qualitative information

S.4 Consensus Mechanism

Katana is present on the following networks: Base, Binance Smart Chain, Ethereum, Katana.

Base does not operate its own consensus mechanism or decentralised validator set comparable to a Layer-1 blockchain. As an optimistic rollup Layer-2 network, Base relies on Ethereum's Proof-of-Stake consensus for the finality and settlement of data and state commitments posted to Ethereum Layer 1. Transaction ordering on Base is performed by a sequencer, currently operated by Coinbase. This sequencing function provides transaction ordering and execution on the Layer-2 network but does not constitute a decentralised consensus mechanism. The validity of Layer-2 state transitions is supported by an optimistic fault-proof mechanism, under which incorrect state commitments may be challenged during the applicable dispute period. Accordingly, Base's security model depends on Ethereum Layer 1 for settlement and finality, while Layer-2 transaction ordering remains dependent on the sequencer.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 "Cabinet" validators and 24 "Candidate" validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by

validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

Katana operates as a Layer-2 network that does not implement its own standalone consensus mechanism. Instead, it relies on a rollup-based architecture where transaction ordering and execution occur off-chain, while final settlement and security are inherited from the underlying Layer-1 blockchain. This design separates execution from consensus, leveraging the base layer for finality and data integrity.

S.5 Incentive Mechanisms and Applicable Fees

Katana is present on the following networks: Base, Binance Smart Chain, Ethereum, Katana.

Base does not have a native protocol token and does not operate a staking, validator reward or token issuance mechanism. Transaction fees on Base are paid in ETH. The economic incentives within the network are primarily related to transaction processing and network security. Transactions are executed on Base and periodically submitted to Ethereum Layer 1 in batches. As the cost of a Layer-1 submission is shared among multiple Layer-2 transactions, the average transaction cost per transaction may be lower than executing the same transactions directly on Ethereum Layer 1. The integrity of withdrawals from Base is supported by a fault-proof mechanism. Withdrawals are subject to a dispute period during which participants may challenge incorrect state commitments. The dispute process incorporates economic incentives intended to encourage honest behaviour and discourage invalid claims.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from

22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

Transaction fees on Katana are paid in the native token and are used to cover execution and network operations. A portion of these fees is allocated to infrastructure participants responsible for sequencing and maintaining the network. The token is also expected to support governance and ecosystem participation, aligning incentives across users, developers, and network operators.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are

assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

To determine the energy consumption of a token, the energy consumption of the network(s) base, binance_smart_chain, ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



MemeCore

M | 6KC5M8HPV

Quantitative information

Quantitative sustainability indicators for MemeCore

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	MemeCore	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	10643.40000	kWh/a

Qualitative information

S.4 Consensus Mechanism

MemeCore uses a hybrid Proof-of-Meme (PoM) consensus mechanism that combines elements of Proof-of-Authority (PoA) and Proof-of-Stake (PoS). During each epoch, a set of active validators is selected based on delegated stake to produce and validate blocks. Validator rankings are updated periodically, while slashing mechanisms help maintain network security and reliable validator performance.

S.5 Incentive Mechanisms and Applicable Fees

MemeCore incentivizes validators and delegators through staking rewards distributed in both the native token and eligible ecosystem tokens. Users can delegate native and approved meme tokens to validators, who share rewards according to predefined distribution rules. Transaction fees are paid for network operations, while additional reward mechanisms support validator participation and ecosystem activity.

S.9 Energy consumption sources and methodologies

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the

hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Tac Token

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Tac Token	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	10359.57600	kWh/a

Qualitative information

S.4 Consensus Mechanism

The Open Network uses a Proof-of-Stake (PoS) consensus mechanism based on the Catchain protocol. Validators stake GRAM to participate in block production, transaction validation, and network security. Catchain provides Byzantine Fault Tolerant (BFT) consensus across the network's sharded architecture, enabling multiple shardchains to process transactions in parallel while maintaining a consistent global state. Validators are selected and rotated periodically, and once consensus is reached, blocks achieve deterministic finality.

S.5 Incentive Mechanisms and Applicable Fees

The Open Network incentivizes network participation through staking rewards and transaction fees. Validators receive rewards for producing blocks, validating transactions, and maintaining network security, with rewards distributed according to their participation and stake. Transaction fees are paid in GRAM and vary depending on the computational resources required by a transaction. The protocol also applies penalties to validators that fail to meet their obligations or act maliciously, encouraging reliable network operation and honest participation.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) toncoin is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Paycoin

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Paycoin	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	10249.20000	kWh/a

Qualitative information

S.4 Consensus Mechanism

Paycoin is present on the following networks: Ethereum, Paycoin.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

The Paycoin network uses a permissioned blockchain architecture based on Hyperledger Fabric, in which participation in transaction validation is restricted to authorized network nodes.

S.5 Incentive Mechanisms and Applicable Fees

Paycoin is present on the following networks: Ethereum, Paycoin.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

PCI is the native asset of the Paycoin ecosystem and is used for payments and network-related fees.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Uniswap

UNI | XMB84LZBZ

Quantitative information

Quantitative sustainability indicators for Uniswap

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Uniswap	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	9745.91816	kWh/a

Qualitative information

S.4 Consensus Mechanism

Uniswap is present on the following networks: Arbitrum, Binance Smart Chain, Ethereum, Polygon.

Arbitrum is an optimistic rollup that processes transactions on a Layer 2 network and relies on Ethereum for data availability and settlement. A sequencer orders incoming transactions, executes them and publishes compressed transaction batches to Ethereum. Arbitrum nodes can independently reconstruct and verify the resulting Layer 2 state using the transaction data published on the parent chain. Validators submit assertions representing the state of the network. Under the BoLD dispute protocol, conflicting or incorrect assertions may be challenged and resolved through an interactive fraud-proof process on Ethereum. Once an assertion has been confirmed and the applicable challenge process has been completed, the corresponding Layer 2 state is accepted for settlement purposes.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 "Cabinet" validators and 24 "Candidate" validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes

that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

Polygon PoS is an EVM-compatible sidechain that operates with a Proof-of-Stake consensus mechanism and periodically submits checkpoints to the Ethereum mainnet. The network maintains its own validator set and processes transactions independently from Ethereum, while using Ethereum smart contracts for staking-related functions and checkpoint verification. Polygon PoS therefore uses Ethereum as a staking and checkpointing layer, but does not rely on Ethereum for full transaction execution or transaction data availability. The Polygon-side architecture consists of two primary node layers. The Bor layer is responsible for transaction execution and block production. The Heimdall layer is responsible for validator coordination, staking-related monitoring, consensus, and checkpoint finalisation. Heimdall is based on Cosmos SDK and CometBFT and aggregates blocks produced by Bor into periodic Merkle-root checkpoints that are submitted to smart contracts on the Ethereum mainnet. Validators participate in the network by staking POL tokens. Token holders may delegate POL tokens to validators, contributing to the validator's effective stake and participating indirectly in network validation. Following the Rio upgrade, Polygon PoS uses a Validator-Elected Block Producer model. Under this model, validators elect the block producer or block producers for a span, rather than relying on the previous stake-weighted selection model for multiple block producers over shorter intervals. Block production and transaction execution are performed on the Bor layer, while Heimdall validators coordinate consensus and checkpoint finalisation. At regular intervals, Heimdall validators aggregate blocks into a Merkle root and submit the resulting checkpoint to Ethereum smart contracts. These checkpoints provide an additional verification layer and support cross-chain verification, including in the context of asset transfers between Polygon PoS and Ethereum. This design enables higher transaction throughput and lower transaction costs than the Ethereum mainnet, while maintaining a technical connection to Ethereum through staking contracts and periodic checkpointing. Polygon PoS should therefore be understood as an independent sidechain or commit-chain architecture, rather than a rollup that inherits full execution and data availability security from Ethereum.

S.5 Incentive Mechanisms and Applicable Fees

Uniswap is present on the following networks: Arbitrum, Binance Smart Chain, Ethereum, Polygon.

Transactions on Arbitrum are subject to fees paid in ETH. The total fee generally consists of a Layer 2 execution component, which covers the computational resources required to process the

transaction, and a parent-chain data component, which reflects the cost of publishing compressed transaction data to Ethereum. The amount payable therefore depends on the computational complexity of the transaction, the volume and compressibility of its data and the prevailing cost of data publication on Ethereum. Participants that submit or challenge state assertions under the dispute protocol must provide economic bonds. These bonds are intended to discourage incorrect assertions and compensate successful participants in the dispute process. Withdrawals through the canonical bridge become executable after the relevant Layer 2 state has been confirmed and the applicable challenge period has elapsed.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

Polygon PoS uses economic incentives to support validator participation, transaction processing, and network operation. Validators stake POL tokens and participate in block production, validation, voting, and checkpoint finalisation. Validators may receive rewards connected to their participation in the network, including rewards linked to validation activities and transaction-fee allocation, depending on the applicable protocol rules. Token holders who do not operate validator infrastructure may delegate POL tokens to validators. Delegators may receive a share of rewards attributable to the validator to whom they delegate, subject to the validator's commission and applicable protocol rules. Delegation increases the validator's effective stake and may affect its role in the validator set and related network processes. Following the Rio upgrade, Polygon PoS introduced a Validator-Elected Block Producer model, under which validators elect the block producer or block producers for a span. Publicly described protocol changes associated with this model also provide for redistribution of fees, including maximum extractable value-related fees where applicable, to non-producing validators under the relevant protocol design. This changes the incentive structure from the previous model in which block production selection was more directly described by reference to stake-weighted producer selection. Polygon PoS includes protocol specifications for validator penalties, including slashing-related concepts. Transactions on Polygon PoS require payment of network fees in POL. Fees apply to ordinary token transfers, smart contract deployment, and smart contract interaction. The amount of fees may vary depending on network demand, transaction complexity, and computational resources required. Because Polygon PoS processes transactions independently from Ethereum, transaction fees are generally designed to be lower than equivalent activity on the Ethereum mainnet, although actual fees may change according to network conditions and protocol parameters.

5.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) arbitrum, binance_smart_chain, ethereum, polygon is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Kujira

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Kujira	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	9204.53011	kWh/a

Qualitative information

S.4 Consensus Mechanism

Kujira is present on the following networks: Arbitrum, Ethereum, Kujira, Osmosis.

Arbitrum is an optimistic rollup that processes transactions on a Layer 2 network and relies on Ethereum for data availability and settlement. A sequencer orders incoming transactions, executes them and publishes compressed transaction batches to Ethereum. Arbitrum nodes can independently reconstruct and verify the resulting Layer 2 state using the transaction data published on the parent chain. Validators submit assertions representing the state of the network. Under the BoLD dispute protocol, conflicting or incorrect assertions may be challenged and resolved through an interactive fraud-proof process on Ethereum. Once an assertion has been confirmed and the applicable challenge process has been completed, the corresponding Layer 2 state is accepted for settlement purposes.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in

certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

Kujira is a Layer 1 blockchain built using the Cosmos SDK and operating under the Tendermint Byzantine Fault Tolerant (BFT) consensus mechanism. It employs a Proof-of-Stake (PoS) model, where validators are selected based on the amount of KUJI tokens staked.

Osmosis operates on a Proof of Stake (PoS) consensus mechanism, leveraging the Cosmos SDK and Tendermint Core to provide secure, decentralized, and scalable transaction processing.

Core Components:

- Proof of Stake (PoS): Validators are chosen based on the amount of OSMO tokens they stake or are delegated by other token holders. Validators are responsible for validating transactions, producing blocks, and maintaining network security.
- Cosmos SDK and Tendermint Core: Osmosis uses Tendermint Core for Byzantine Fault Tolerant (BFT) consensus, ensuring fast finality and resistance to attacks as long as less than one-third of validators are malicious.
- Decentralized Governance: OSMO token holders can participate in governance by voting on protocol upgrades and network parameters, fostering a community-driven approach to network development.

S.5 Incentive Mechanisms and Applicable Fees

Kujira is present on the following networks: Arbitrum, Ethereum, Kujira, Osmosis.

Transactions on Arbitrum are subject to fees paid in ETH. The total fee generally consists of a Layer 2 execution component, which covers the computational resources required to process the transaction, and a parent-chain data component, which reflects the cost of publishing compressed transaction data to Ethereum. The amount payable therefore depends on the computational complexity of the transaction, the volume and compressibility of its data and the prevailing cost of data publication on Ethereum. Participants that submit or challenge state assertions under the dispute protocol must provide economic bonds. These bonds are intended to discourage incorrect assertions and compensate successful participants in the dispute process. Withdrawals through the canonical bridge become executable after the relevant Layer 2 state has been confirmed and the applicable challenge period has elapsed.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

Kujira's native token, KUJI, serves multiple roles within the network, including staking, governance, and transaction fee payments. Validators and delegators who stake KUJI tokens contribute to network security and, in return, receive rewards proportional to their stake. Transaction fees within the network are paid in KUJI.

Osmosis incentivizes validators, delegators, and liquidity providers through a combination of staking rewards, transaction fees, and liquidity incentives.

Incentive Mechanisms:

- Validator Rewards: Validators earn rewards from transaction fees and block rewards, distributed in OSMO tokens, for their role in securing the network and processing transactions. Delegators who stake their OSMO tokens with validators receive a share of these rewards.
- Liquidity Provider Rewards: Users providing liquidity to Osmosis pools earn swap fees and may receive additional incentives in the form of OSMO tokens to encourage liquidity provision.
- Superfluid Staking: Liquidity providers can participate in superfluid staking, staking a portion of their OSMO tokens within liquidity pools. This mechanism allows users to earn staking rewards while maintaining liquidity in the pools

Applicable Fees:

Transaction Fees: Users pay transaction fees in OSMO tokens for network activities, including swaps, staking, and governance participation. These fees are distributed to validators and delegators, incentivizing their continued participation and support for network security.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

To determine the energy consumption of a token, the energy consumption of the network(s) arbitrum, ethereum, osmosis is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary

principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for DeLorean

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	DeLorean	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	9078.68880	kWh/a

Qualitative information

S.4 Consensus Mechanism

The Sui blockchain utilizes a Byzantine Fault Tolerant (BFT) consensus mechanism optimized for high throughput and low latency.

Core Components:

1. Mysten Consensus Protocol:

- The Sui consensus is based on Mysten Labs' Byzantine Fault Tolerance (BFT) protocol, which builds on principles of Practical Byzantine Fault Tolerance (pBFT) but introduces key optimizations for performance.
- Leaderless Design: Unlike traditional BFT models, Sui does not rely on a single leader to propose blocks. Validators can propose blocks simultaneously, increasing efficiency and reducing the risks associated with leader failure or attacks.
- Parallel Processing: Transactions can be processed in parallel, maximizing network throughput by utilizing multiple cores and threads. This allows for faster confirmation of transactions and high scalability.

2. Transaction Validation:

Validators are responsible for receiving transaction requests from clients and processing them. Each transaction includes digital signatures and must meet the network's rules to be considered valid. Validators can propose transactions simultaneously, unlike many other networks that require a sequential, leader-driven process.

3. Optimistic Execution:

Optimistic Consensus: Sui allows validators to process certain non-contentious, independent transactions without waiting for full consensus. This is known as optimistic execution and helps reduce transaction latency for many use cases, allowing for fast finality in most cases.

4. Finality and Latency:

The system only requires three rounds of communication between validators to finalize a transaction. This results in low-latency consensus and rapid transaction confirmation times, achieving scalability while maintaining security.

5. Fault Tolerance:

The system can tolerate up to one-third of validators being faulty or malicious without compromising the integrity of the consensus process.

S.5 Incentive Mechanisms and Applicable Fees

Security and Economic Incentives:

1. Validators:

Validators stake SUI tokens to participate in the consensus process. They earn rewards for validating transactions and securing the network.

2. Slashing:

Validators can be penalized (slashed) for malicious behavior, such as double-signing or failing to properly validate transactions. This helps maintain network security and incentivizes honest behavior.

3. Delegation:

Token holders can delegate their SUI tokens to trusted validators. In return, they share in the rewards earned by validators. This encourages widespread participation in securing the network.

Fees on the SUI Blockchain:

1. Transaction Fees:

Users pay transaction fees to validators for processing and confirming transactions. These fees are calculated based on the computational resources required to process the transaction. Fees are paid in SUI tokens, which is the native cryptocurrency of the Sui blockchain.

2. Dynamic Fee Model:

The transaction fees on Sui are dynamic, meaning they adjust based on network demand and the complexity of the transactions being processed.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) sui is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Parallel Finance

PARA | /

Quantitative information

Quantitative sustainability indicators for Parallel Finance

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Parallel Finance	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	9066.60000	kWh/a

Qualitative information

S.4 Consensus Mechanism

Parallel Finance operates as a parachain within the Polkadot network, utilizing Polkadot's shared security model.

S.5 Incentive Mechanisms and Applicable Fees

The native token, PARA, serves multiple functions within the Parallel Finance ecosystem. It is used to pay transaction fees, which are burned, reducing the total supply of PARA over time. PARA is also utilized for staking, allowing token holders to participate in network security and earn rewards.

S.9 Energy consumption sources and methodologies

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The

information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Integritee

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Integritee	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	8672.40000	kWh/a

Qualitative information

S.4 Consensus Mechanism

Integritee is present on the following networks: Ethereum, Integritee.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

Integritee is a Substrate-based blockchain that operates as a parachain within the Polkadot ecosystem. Block production is performed by collator nodes, while consensus finality and the underlying network security are provided through Polkadot's Nominated Proof-of-Stake (NPoS) validator system.

S.5 Incentive Mechanisms and Applicable Fees

Integritee is present on the following networks: Ethereum, Integritee.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

TEER is the native token of the Integritee Network and is used for transaction fees and network incentives. Collators can receive rewards for maintaining the parachain infrastructure and producing candidate blocks, while fees are charged for on-chain transactions and operations.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Acurast

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Acurast	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	8278.20000	kWh/a

Qualitative information

S.4 Consensus Mechanism

Acurast runs its own Layer-1 blockchain secured by a Nominated Proof-of-Stake (NPoS) consensus model, where token holders nominate validators.

S.5 Incentive Mechanisms and Applicable Fees

The native token ACU is used to pay transaction and compute execution fees and to participate in staking. Rewards are distributed to participants who contribute compute resources, stake tokens ("Staked Compute"), or act as validators, with portions of inflation allocated to these reward pools. Fees collected on-chain help fund rewards and the network treasury, and token holders can engage in on-chain governance.

S.9 Energy consumption sources and methodologies

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital

Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for ChainLink Token

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	ChainLink Token	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	8009.65894	kWh/a

Qualitative information

S.4 Consensus Mechanism

ChainLink Token is present on the following networks: Arbitrum, Avalanche, Binance Smart Chain, Ethereum, Fantom, Gnosis Chain, Optimism, Polygon, Solana.

Arbitrum is an optimistic rollup that processes transactions on a Layer 2 network and relies on Ethereum for data availability and settlement. A sequencer orders incoming transactions, executes them and publishes compressed transaction batches to Ethereum. Arbitrum nodes can independently reconstruct and verify the resulting Layer 2 state using the transaction data published on the parent chain. Validators submit assertions representing the state of the network. Under the BoLD dispute protocol, conflicting or incorrect assertions may be challenged and resolved through an interactive fraud-proof process on Ethereum. Once an assertion has been confirmed and the applicable challenge process has been completed, the corresponding Layer 2 state is accepted for settlement purposes.

The Avalanche C-Chain uses the Snowman++ consensus mechanism, which is Avalanche's consensus model for linear blockchains and is implemented through the ProposerVM wrapper. Under this model, validators repeatedly query a small random subset of other validators and converge on a preferred block once the required confidence thresholds are met. Only Primary Network validators are entitled to validate the C-Chain. To participate as a validator on Avalanche mainnet, a node must stake a minimum number of token. Token holders may also participate indirectly by delegating an existing validator. Validator identity and admission to staking require the relevant staking credentials, including BLS proofs of possession under the current staking framework. For block production,

Snowman++ uses stake-weighted proposer windows. Through the ProposerVM, block-building opportunities are assigned to proposers in 5-second windows, after which block production may fall back more broadly to validators if necessary. This mechanism is intended to regulate block production while preserving network liveness. Consensus voting itself remains based on repeated sub-sampled polling rather than fixed validator committees. Avalanche documentation describes the finality model as sub-second and treated by the protocol as final and irreversible once accepted, while noting that safety is probabilistic in the formal sense because the probability of conflicting acceptance can be reduced to an arbitrarily low level through the protocol parameters. The protocol does not rely on slashing of staked principal. Instead, validator reward eligibility depends on compliance with protocol conditions, including uptime requirements.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum’s consensus mechanism and Layer 2 functionality.

Fantom operates on the Lachesis Protocol, an Asynchronous Byzantine Fault Tolerant (aBFT) consensus mechanism designed for fast, secure, and scalable transactions.

Core Components of Fantom’s Consensus:

1. Lachesis Protocol (aBFT):

- Asynchronous and Leaderless: Lachesis allows nodes to reach consensus independently without relying on a central leader, enhancing decentralization and speed.
- DAG Structure: Instead of a linear blockchain, Lachesis uses a Directed Acyclic Graph (DAG) structure, allowing multiple transactions to be processed in parallel across nodes. This structure supports high throughput, making the network suitable for applications requiring rapid transaction processing.

2. Event Blocks and Instant Finality:

- Event Blocks: Transactions are grouped into event blocks, which are validated asynchronously by multiple validators. When enough validators confirm an event block, it becomes part of the Fantom network's history.
- Instant Finality: Transactions on Fantom achieve immediate finality, meaning they are confirmed and cannot be reversed. This property is ideal for applications requiring fast and irreversible transactions.

Gnosis Chain – Consensus Mechanism Gnosis Chain employs a dual-layer structure to balance scalability and security, using Proof of Stake (PoS) for its core consensus and transaction finality.

Core Components:

- Two-Layer Structure Layer 1: Gnosis Beacon Chain The Gnosis Beacon Chain operates on a Proof of Stake (PoS) mechanism, acting as the security and consensus backbone. Validators stake GNO tokens on the Beacon Chain and validate transactions, ensuring network security and finality.
- Layer 2: Gnosis xDai Chain processes transactions and dApp interactions, providing high-speed, low-cost transactions. Layer 2 transaction data is finalized on the Gnosis Beacon Chain, creating an integrated framework where Layer 1 ensures security and finality, and Layer 2 enhances scalability. Validator Role and Staking Validators on the Gnosis Beacon Chain stake GNO tokens and participate in consensus by validating blocks. This setup ensures that validators have an economic interest in maintaining the security and integrity of both the Beacon Chain (Layer 1) and the xDai Chain (Layer 2). Cross-Layer Security Transactions on Layer 2 are ultimately finalized on Layer 1, providing security and finality to all activities on the Gnosis Chain. This architecture allows Gnosis Chain to combine the speed and cost efficiency of Layer 2 with the security guarantees of a PoS-secured Layer 1, making it suitable for both high-frequency applications and secure asset management.

Since Optimism is based on Ethereum, it ultimately inherits its security via the Ethereum blockchain and the proof-of-stake consensus. Within the rollup system, Optimism relies on a “fault proof” procedure. By default, transactions are assumed to be correct (“optimistic”). Only in the event of suspected faults is a fault proof initiated, in which incorrect transactions can be challenged by challengers. This model allows for high efficiency while ensuring correctness.

Polygon PoS is an EVM-compatible sidechain that operates with a Proof-of-Stake consensus mechanism and periodically submits checkpoints to the Ethereum mainnet. The network maintains its own validator set and processes transactions independently from Ethereum, while using Ethereum smart contracts for staking-related functions and checkpoint verification. Polygon PoS therefore uses Ethereum as a staking and checkpointing layer, but does not rely on Ethereum for full transaction execution or transaction data availability. The Polygon-side architecture consists of two primary node layers. The Bor layer is responsible for transaction execution and block production. The Heimdall layer is responsible for validator coordination, staking-related monitoring, consensus, and checkpoint finalisation. Heimdall is based on Cosmos SDK and CometBFT and aggregates blocks produced by Bor into periodic Merkle-root checkpoints that are submitted to smart contracts on the Ethereum mainnet. Validators participate in the network by staking POL tokens. Token holders may delegate POL tokens to validators, contributing to the validator's effective stake and participating indirectly in network validation. Following the Rio upgrade, Polygon PoS uses a Validator-Elected Block Producer model. Under this model, validators elect the block producer or block producers for a span, rather than relying on the previous stake-weighted selection model for multiple block producers over shorter intervals. Block production and transaction execution are performed on the Bor layer, while Heimdall validators coordinate consensus and checkpoint finalisation. At regular intervals, Heimdall validators aggregate blocks into a Merkle root and submit the resulting checkpoint

to Ethereum smart contracts. These checkpoints provide an additional verification layer and support cross-chain verification, including in the context of asset transfers between Polygon PoS and Ethereum. This design enables higher transaction throughput and lower transaction costs than the Ethereum mainnet, while maintaining a technical connection to Ethereum through staking contracts and periodic checkpointing. Polygon PoS should therefore be understood as an independent sidechain or commit-chain architecture, rather than a rollup that inherits full execution and data availability security from Ethereum.

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.

- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.
2. Security:
- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
 - Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.
3. Economic Penalties:
- Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

ChainLink Token is present on the following networks: Arbitrum, Avalanche, Binance Smart Chain, Ethereum, Fantom, Gnosis Chain, Optimism, Polygon, Solana.

Transactions on Arbitrum are subject to fees paid in ETH. The total fee generally consists of a Layer 2 execution component, which covers the computational resources required to process the transaction, and a parent-chain data component, which reflects the cost of publishing compressed transaction data to Ethereum. The amount payable therefore depends on the computational complexity of the transaction, the volume and compressibility of its data and the prevailing cost of data publication on Ethereum. Participants that submit or challenge state assertions under the dispute protocol must provide economic bonds. These bonds are intended to discourage incorrect assertions and compensate successful participants in the dispute process. Withdrawals through the canonical bridge become executable after the relevant Layer 2 state has been confirmed and the applicable challenge period has elapsed.

The Avalanche C-Chain is secured economically through the native AVAX token. Validator incentives are based primarily on staking rewards, not on redistribution of C-Chain transaction fees. A fixed amount of 360 million AVAX was minted at genesis, while additional AVAX is minted over time as validator rewards, subject to Avalanche's capped token supply framework. Validator rewards are paid at the end of the staking period and are determined by factors such as the validator's stake and compliance with staking conditions. Unlike some proof-of-stake systems, the Avalanche Primary Network does not use slashing of bonded principal as an ordinary penalty mechanism. Instead, the main protocol-level economic consequence for underperformance is the loss of reward eligibility. Where a validator fails to satisfy the applicable uptime requirement during its staking term, that validator does not receive the corresponding staking reward. Transaction fees apply on the C-Chain for transfers and smart-contract execution. The fee model follows EIP-1559 logic, meaning that transactions are priced through a dynamic base fee mechanism. In contrast to Ethereum's validator tip model, C-Chain transaction fees are burned rather than distributed to validators. This means that C-Chain fees function as a supply-reduction mechanism and are intended in part to offset inflation arising from the minting of validator rewards. In addition to ordinary transaction and smart-contract execution fees, Avalanche documentation also recognises protocol fees in connection with other network operations on other chains of the Primary Network, such as certain import or export operations and staking-related actions. However, for the C-Chain itself, the core applicable fee category is the gas fee for transaction inclusion and contract execution, and those fees are handled through the protocol burn mechanism rather than paid to validators or a treasury.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

Fantom's incentive model promotes network security through staking rewards, transaction fees, and delegation options, encouraging broad participation.

Incentive Mechanisms:

1. Staking Rewards for Validators:

- Earning Rewards in FTM: Validators who participate in the consensus process earn rewards in FTM tokens, proportional to the amount they have staked. This incentivizes validators to actively secure the network.

- Dynamic Staking Rate: Fantom's staking reward rate is dynamic, adjusting based on total FTM staked across the network. As more FTM is staked, individual rewards may decrease, maintaining a balanced reward structure that supports long-term network security.

2. Delegation for Token Holders:

Delegated Staking: Users who do not operate validator nodes can delegate their FTM tokens to validators. In return, they share in the staking rewards, encouraging wider participation in securing the network.

Applicable Fees:

- Transaction Fees in FTM: Users pay transaction fees in FTM tokens. The network's high throughput and DAG structure keep fees low, making Fantom ideal for decentralized applications (dApps) requiring frequent transactions.
- Efficient Fee Model: The low fees and scalability of the network make it cost-effective for users, fostering a favorable environment for high-volume applications.

The Gnosis Chain's incentive and fee models encourage both validator participation and network accessibility, using a dual-token system to maintain low transaction costs and effective staking rewards.

Incentive Mechanisms:

- Staking Rewards for Validators GNO Rewards: Validators earn staking rewards in GNO tokens for their participation in consensus and securing the network.
- Delegation Model: GNO holders who do not operate validator nodes can delegate their GNO tokens to validators, allowing them to share in staking rewards and encouraging broader participation in network security.
- Dual-Token Model GNO: Used for staking, governance, and validator rewards, GNO aligns long-term network security incentives with token holders' economic interests.
- xDai: Serves as the primary transaction currency, providing stable and low-cost transactions. The use of a stable token (xDai) for fees minimizes volatility and offers predictable costs for users and developers.

Applicable Fees:

Transaction Fees in xDai Users pay transaction fees in xDai, the stable fee token, making costs affordable and predictable. This model is especially suited for high-frequency applications and dApps where low transaction fees are essential. xDai transaction fees are redistributed to validators as part of their compensation, aligning their rewards with network activity. Delegated Staking Rewards Through delegated staking, GNO holders can earn a share of staking rewards by delegating their tokens to active validators, promoting user participation in network security without requiring direct involvement in consensus operations.

Optimism charges lower transaction fees than Ethereum Layer 1, as transactions are bundled in the rollup and written to the Ethereum main chain in compressed form. Gas fees on Optimism continue to be paid in ETH. The incentive model is based on increased efficiency for users (lower fees, faster confirmation) and on the role of sequencers. Sequencers are central actors who collect, organize, and include transactions in the rollup. Their revenue comes from the gas fees they charge.

Polygon PoS uses economic incentives to support validator participation, transaction processing, and network operation. Validators stake POL tokens and participate in block production, validation, voting, and checkpoint finalisation. Validators may receive rewards connected to their participation in the network, including rewards linked to validation activities and transaction-fee allocation,

depending on the applicable protocol rules. Token holders who do not operate validator infrastructure may delegate POL tokens to validators. Delegators may receive a share of rewards attributable to the validator to whom they delegate, subject to the validator's commission and applicable protocol rules. Delegation increases the validator's effective stake and may affect its role in the validator set and related network processes. Following the Rio upgrade, Polygon PoS introduced a Validator-Elected Block Producer model, under which validators elect the block producer or block producers for a span. Publicly described protocol changes associated with this model also provide for redistribution of fees, including maximum extractable value-related fees where applicable, to non-producing validators under the relevant protocol design. This changes the incentive structure from the previous model in which block production selection was more directly described by reference to stake-weighted producer selection. Polygon PoS includes protocol specifications for validator penalties, including slashing-related concepts. Transactions on Polygon PoS require payment of network fees in POL. Fees apply to ordinary token transfers, smart contract deployment, and smart contract interaction. The amount of fees may vary depending on network demand, transaction complexity, and computational resources required. Because Polygon PoS processes transactions independently from Ethereum, transaction fees are generally designed to be lower than equivalent activity on the Ethereum mainnet, although actual fees may change according to network conditions and protocol parameters.

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.
- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.

2. Delegators:

- Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.

3. Economic Security:

- Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
- Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Fees Applicable on the Solana Blockchain

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.

2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.

3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.

4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) arbitrum, avalanche, binance_smart_chain, ethereum, fantom, gnosis_chain, optimism, polygon, solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for IAGON

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	IAGON	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	7739.46000	kWh/a

Qualitative information

S.4 Consensus Mechanism

Core Components: Cardano uses the Ouroboros consensus mechanism, a Proof of Stake (PoS) protocol designed for scalability, security, and energy efficiency.

Core Concepts:

1. Proof of Stake (PoS): Validators (called slot leaders) are selected based on the amount of ADA they have staked, rather than solving complex computational puzzles. Validators propose and validate blocks, which are added to the blockchain.
2. Epochs and Slot Leaders: Cardano divides time into epochs (fixed time periods), each of which is subdivided into slots. Slot leaders are selected for each slot to validate and propose blocks. Slot leaders are chosen randomly based on the amount of ADA staked. More stake increases the probability of being selected. Validators are responsible for confirming transactions during their slot and passing the block to the next slot leader.
3. Delegation and Staking Pools: ADA holders can delegate their tokens to staking pools, which increases the pool's chances of being selected to validate a block. The pool operator and delegators share the rewards based on their stakes. This system ensures that participants who do not want to operate a full validator node can still earn rewards and contribute to network security by supporting trusted staking pools.
4. Security and Adversary Resistance: Ouroboros ensures security even in the presence of potential attacks. It assumes that adversaries may attempt to propagate alternative chains or send arbitrary messages. The protocol is secure as long as more than 51% of the staked ADA is controlled by

honest participants. Settlement Delay: To protect against adversarial attacks, the new slot leader must consider the last few blocks as transient. Only the blocks preceding these are treated as finalized, ensuring that chain finality is secure against manipulation attempts. This mechanism also allows participants to temporarily go offline and resynchronize as long as they are not disconnected for more than the settlement delay period.

5. Chain Selection: Cardano's nodes adopt the longest valid chain rule: each node stores a local copy of the blockchain and replaces it with any discovered valid, longer chain. This ensures that all nodes eventually converge on a single version of the blockchain, maintaining network consistency.

5.5 Incentive Mechanisms and Applicable Fees

Cardano uses incentive mechanisms to ensure network security and decentralization through staking rewards, slashing mechanisms, and transaction fees.

Incentive Mechanisms to Secure Transactions:

1. Staking Rewards:

- Validators, known as slot leaders, secure the network by validating transactions and creating new blocks. To participate, validators must stake ADA, and those with larger stakes are more likely to be selected as slot leaders.
- Validators are rewarded with newly minted ADA and transaction fees for successfully producing blocks and validating transactions.
- Delegators, who may not wish to run a validator node, can delegate their ADA to staking pools. By doing so, they contribute to the network's security and earn a share of the rewards earned by the pool. The rewards are distributed proportionally based on the amount of ADA delegated.

2. Slashing Mechanism:

- To prevent malicious behavior, Cardano employs a slashing mechanism. Validators who act dishonestly, fail to validate transactions properly, or produce incorrect blocks face penalties that involve the slashing of a portion of their staked ADA.
- This provides strong economic incentives for validators to act honestly and ensures the network's integrity and security.

3. Delegation and Pool Operation:

- Staking pools can charge operation fees (a margin on rewards) to maintain their infrastructure. This includes fixed costs set by pool operators. Delegators earn rewards after pool fees are deducted, providing a balanced incentive for both operators and delegators to participate actively.
- Rewards are distributed at the end of each epoch, where staking pool performance and participation determine the distribution of ADA rewards to all stakeholders.

Applicable Fees:

1. Transaction Fees:

- Transaction fees on Cardano are paid in ADA and are generally low. They are calculated based on the size of the transaction and the network's current demand. These fees are paid to validators for including transactions in new blocks.
- The fee formula is: $a + b \times \text{size}$, where a is a constant (typically 0.155381 ADA), b is a coefficient related to the transaction size (0.000043946 ADA/byte), and size refers to the transaction size in bytes. This ensures that the fee adapts based on network load and the size of each transaction.

2. Staking Pool Fees:

- Staking pool operators charge operational costs and a margin fee, which covers the cost of running and maintaining the staking pool. These fees vary between pools but ensure that operators can continue to provide their services while offering rewards to delegators.

- After the operator's fee, the remaining rewards are distributed among the delegators based on the size of their stake.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) cardano is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Kintsugi

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Kintsugi	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	6701.40000	kWh/a

Qualitative information

S.4 Consensus Mechanism

Kintsugi operates as a parachain within the Kusama network, utilizing the shared security model provided by Kusama's relay chain validators. This setup ensures efficient block production and finality, leveraging Kusama's robust infrastructure to maintain network integrity.

S.5 Incentive Mechanisms and Applicable Fees

The Kintsugi network's native token, KINT, serves multiple roles, including transaction fee payments, governance participation, and incentivization of network participants. Additionally, KINT holders can participate in governance decisions.

S.9 Energy consumption sources and methodologies

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we

update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for ZKsync

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	ZKsync	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	6570.98079	kWh/a

Qualitative information

S.4 Consensus Mechanism

zkSync operates as a Layer 2 scaling solution for Ethereum, leveraging zero-knowledge rollups (ZK-Rollups) to enable fast, cost-effective, and secure transactions. This consensus mechanism allows zkSync to offload transaction computation from Ethereum's Layer 1, ensuring scalability while maintaining Ethereum's base-layer security.

Core Components:

- Zero-Knowledge Rollups (ZK-Rollups):
zkSync aggregates multiple transactions off-chain and processes them in batches. A cryptographic proof, called a validity proof, is generated for each batch and submitted to the Ethereum mainnet. This ensures that all transactions are valid and compliant with Ethereum's rules without processing them individually on Layer 1.
- Validity Proofs:
zkSync uses zk-SNARKs (Succinct Non-Interactive Arguments of Knowledge) for its validity proofs. These proofs provide mathematical guarantees that transactions within a batch are valid, eliminating the need for Ethereum nodes to re-execute off-chain transactions.
- Sequencers:
Transactions on zkSync are ordered and processed by sequencers, which bundle transactions into batches. Sequencers maintain network efficiency and provide fast confirmations.

- Fraud Resistance:

Unlike Optimistic Rollups, zkSync relies on validity proofs rather than fraud proofs, meaning that transactions are final and secure as soon as the validity proof is accepted by Ethereum.

- Data Availability:

All transaction data is stored on-chain, ensuring that the network remains decentralized and users can reconstruct the state of zkSync at any time.

S.5 Incentive Mechanisms and Applicable Fees

zkSync incentivizes network participants through a streamlined fee structure and role-based rewards, designed to ensure security, scalability, and usability for both users and validators.

Incentive Mechanism:

- Validator Rewards: Validators, who generate validity proofs and secure the network, are compensated through transaction fees paid by users. Their role ensures that batches of transactions are processed efficiently and accurately.
- Sequencer Incentives: Sequencers are responsible for bundling and ordering transactions off-chain. They earn a share of the transaction fees for maintaining network performance and fast processing times.
- Ecosystem Growth Rewards: zkSync allocates resources to incentivize developers and projects building on its platform, fostering a robust ecosystem of dApps, DeFi protocols, and NFT marketplaces.

Applicable Fees:

- Transaction Fees: Users pay fees in Ether (ETH) for transactions on zkSync. These fees are significantly lower than Ethereum Layer 1 fees, as zkSync processes transactions off-chain and submits only aggregated proofs to the Ethereum mainnet.
- Fee Model: Fees are dynamically calculated based on the complexity of transactions (e.g., token transfers, smart contract interactions) and the cost of submitting validity proofs to Ethereum.
- Scalability Benefits: zkSync's efficient rollup architecture reduces gas fees for users while ensuring that validators and sequencers are appropriately compensated for their roles.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) zksync is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for KILT

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	KILT	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	6307.20000	kWh/a

Qualitative information

S.4 Consensus Mechanism

KILT operates as a parachain within the Polkadot ecosystem, utilizing a Limited Delegated Proof-of-Stake (LDPoS) consensus model.

S.5 Incentive Mechanisms and Applicable Fees

The native token, KILT, serves multiple roles within the network, including transaction fee payments, staking, and governance participation. Collators and their supporting delegators receive rewards for their contributions to block production and network security.

S.9 Energy consumption sources and methodologies

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The

information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Plume

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Plume	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	6298.22360	kWh/a

Qualitative information

S.4 Consensus Mechanism

Plume is present on the following networks: Ethereum, Plume.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

Plume is described as relying on an architecture aligned with optimistic rollup technology within the Arbitrum Orbit framework. Under this design, transaction ordering is typically performed by a sequencer, while settlement and finality are achieved via anchoring to Ethereum. Economic incentives and protocol rules are generally designed to encourage timely submission of fraud proofs (where applicable) within predefined challenge windows. The precise security guarantees and finality

characteristics depend on the rollup configuration, the sequencer setup, and Ethereum's underlying security assumptions.

S.5 Incentive Mechanisms and Applicable Fees

Plume is present on the following networks: Ethereum, Plume.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

The network is described as applying transaction fees as a core economic mechanism to support network operation and security. Fee flows may be used to remunerate relevant network roles (for example, sequencer- or validator-related functions, if and to the extent such roles exist in the deployed architecture). In addition, PLUME is described as being used in connection with incentive and participation mechanisms, including potential staking-related arrangements and interaction with DeFi applications. Any yields, rewards, or other economic benefits are contingent on protocol parameters, market conditions, and user behaviour, and may be changed by governance or technical updates, or may not materialise as expected.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally

Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



SKY Governance Token

SKY | G4GDNF84C

Quantitative information

Quantitative sustainability indicators for SKY Governance Token

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	SKY Governance Token	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	6192.43571	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



1INCH Token

1INCH | SVRFHQZRZ

Quantitative information

Quantitative sustainability indicators for 1INCH Token

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	1INCH Token	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	5980.08166	kWh/a

Qualitative information

S.4 Consensus Mechanism

1INCH Token is present on the following networks: Avalanche, Binance Smart Chain, Ethereum, Gnosis Chain, Near Protocol, Solana.

The Avalanche C-Chain uses the Snowman++ consensus mechanism, which is Avalanche’s consensus model for linear blockchains and is implemented through the ProposerVM wrapper. Under this model, validators repeatedly query a small random subset of other validators and converge on a preferred block once the required confidence thresholds are met. Only Primary Network validators are entitled to validate the C-Chain. To participate as a validator on Avalanche mainnet, a node must stake a minimum number of token. Token holders may also participate indirectly by delegating an existing validator. Validator identity and admission to staking require the relevant staking credentials, including BLS proofs of possession under the current staking framework. For block production, Snowman++ uses stake-weighted proposer windows. Through the ProposerVM, block-building opportunities are assigned to proposers in 5-second windows, after which block production may fall back more broadly to validators if necessary. This mechanism is intended to regulate block production while preserving network liveness. Consensus voting itself remains based on repeated sub-sampled polling rather than fixed validator committees. Avalanche documentation describes the finality model as sub-second and treated by the protocol as final and irreversible once accepted, while noting that safety is probabilistic in the formal sense because the probability of conflicting acceptance can be reduced to an arbitrarily low level through the protocol parameters. The protocol does not rely on slashing of staked principal. Instead, validator reward eligibility depends on compliance with protocol conditions, including uptime requirements.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum’s consensus mechanism and Layer 2 functionality.

Gnosis Chain – Consensus Mechanism Gnosis Chain employs a dual-layer structure to balance scalability and security, using Proof of Stake (PoS) for its core consensus and transaction finality.

Core Components:

- **Two-Layer Structure** Layer 1: Gnosis Beacon Chain The Gnosis Beacon Chain operates on a Proof of Stake (PoS) mechanism, acting as the security and consensus backbone. Validators stake GNO tokens on the Beacon Chain and validate transactions, ensuring network security and finality.
 - **Layer 2: Gnosis xDai Chain** processes transactions and dApp interactions, providing high-speed, low-cost transactions. Layer 2 transaction data is finalized on the Gnosis Beacon Chain, creating an integrated framework where Layer 1 ensures security and finality, and Layer 2 enhances scalability.
- Validator Role and Staking** Validators on the Gnosis Beacon Chain stake GNO tokens and participate in consensus by validating blocks. This setup ensures that validators have an economic interest in maintaining the security and integrity of both the Beacon Chain (Layer 1) and the xDai Chain (Layer 2). **Cross-Layer Security** Transactions on Layer 2 are ultimately finalized on Layer 1, providing security and finality to all activities on the Gnosis Chain. This architecture allows Gnosis Chain to combine the speed and cost efficiency of Layer 2 with the security guarantees of a PoS-secured Layer 1, making it suitable for both high-frequency applications and secure asset management.

The NEAR Protocol uses a unique consensus mechanism combining Proof of Stake (PoS) and a novel approach called Doomslug, which enables high efficiency, fast transaction processing, and secure finality in its operations.

Core Concepts:

1. Doomslug and Proof of Stake:

- NEAR's consensus mechanism primarily revolves around PoS, where validators stake NEAR tokens to participate in securing the network. However, NEAR's implementation is enhanced with the Doomslug protocol.
- Doomslug allows the network to achieve fast block finality by requiring blocks to be confirmed in two stages. Validators propose blocks in the first step, and finalization occurs when two-thirds of validators approve the block, ensuring rapid transaction confirmation.

2. Sharding with Nightshade:

- NEAR uses a dynamic sharding technique called Nightshade. This method splits the network into multiple shards, enabling parallel processing of transactions across the network, thus significantly increasing throughput. Each shard processes a portion of transactions, and the outcomes are merged into a single "snapshot" block.
- This sharding approach ensures scalability, allowing the network to grow and handle increasing demand efficiently.

Consensus Process:

1. Validator Selection:

- Validators are selected to propose and validate blocks based on the amount of NEAR tokens staked. This selection process is designed to ensure that only validators with significant stakes and community trust participate in securing the network.

2. Transaction Finality:

- NEAR achieves transaction finality through its PoS-based system, where validators vote on blocks. Once two-thirds of validators approve a block, it reaches finality under Doomslug, meaning that no forks can alter the confirmed state.

3. Epochs and Rotation:

- Validators are rotated in epochs to ensure fairness and decentralization. Epochs are intervals in which validators are reshuffled, and new block proposers are selected, ensuring a balance between performance and decentralization.

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

1INCH Token is present on the following networks: Avalanche, Binance Smart Chain, Ethereum, Gnosis Chain, Near Protocol, Solana.

The Avalanche C-Chain is secured economically through the native AVAX token. Validator incentives are based primarily on staking rewards, not on redistribution of C-Chain transaction fees. A fixed amount of 360 million AVAX was minted at genesis, while additional AVAX is minted over time as validator rewards, subject to Avalanche's capped token supply framework. Validator rewards are paid at the end of the staking period and are determined by factors such as the validator's stake and compliance with staking conditions. Unlike some proof-of-stake systems, the Avalanche Primary Network does not use slashing of bonded principal as an ordinary penalty mechanism. Instead, the

main protocol-level economic consequence for underperformance is the loss of reward eligibility. Where a validator fails to satisfy the applicable uptime requirement during its staking term, that validator does not receive the corresponding staking reward. Transaction fees apply on the C-Chain for transfers and smart-contract execution. The fee model follows EIP-1559 logic, meaning that transactions are priced through a dynamic base fee mechanism. In contrast to Ethereum's validator tip model, C-Chain transaction fees are burned rather than distributed to validators. This means that C-Chain fees function as a supply-reduction mechanism and are intended in part to offset inflation arising from the minting of validator rewards. In addition to ordinary transaction and smart-contract execution fees, Avalanche documentation also recognises protocol fees in connection with other network operations on other chains of the Primary Network, such as certain import or export operations and staking-related actions. However, for the C-Chain itself, the core applicable fee category is the gas fee for transaction inclusion and contract execution, and those fees are handled through the protocol burn mechanism rather than paid to validators or a treasury.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to

slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

The Gnosis Chain's incentive and fee models encourage both validator participation and network accessibility, using a dual-token system to maintain low transaction costs and effective staking rewards.

Incentive Mechanisms:

- Staking Rewards for Validators GNO Rewards: Validators earn staking rewards in GNO tokens for their participation in consensus and securing the network.
- Delegation Model: GNO holders who do not operate validator nodes can delegate their GNO tokens to validators, allowing them to share in staking rewards and encouraging broader participation in network security.
- Dual-Token Model GNO: Used for staking, governance, and validator rewards, GNO aligns long-term network security incentives with token holders' economic interests.
- xDai: Serves as the primary transaction currency, providing stable and low-cost transactions. The use of a stable token (xDai) for fees minimizes volatility and offers predictable costs for users and developers.

Applicable Fees:

Transaction Fees in xDai Users pay transaction fees in xDai, the stable fee token, making costs affordable and predictable. This model is especially suited for high-frequency applications and dApps where low transaction fees are essential. xDai transaction fees are redistributed to validators as part of their compensation, aligning their rewards with network activity. Delegated Staking Rewards Through delegated staking, GNO holders can earn a share of staking rewards by delegating their tokens to active validators, promoting user participation in network security without requiring direct involvement in consensus operations.

NEAR Protocol employs several economic mechanisms to secure the network and incentivize participation.

Incentive Mechanisms to Secure Transactions:

1. Staking Rewards:

Validators and delegators secure the network by staking NEAR tokens. Validators earn around 5% annual inflation, with 90% of newly minted tokens distributed as staking rewards. Validators propose blocks, validate transactions, and receive a share of these rewards based on their staked tokens. Delegators earn rewards proportional to their delegation, encouraging broad participation.

2. Delegation:

Token holders can delegate their NEAR tokens to validators to increase the validator's stake and improve the chances of being selected to validate transactions. Delegators share in the validator's rewards based on their delegated tokens, incentivizing users to support reliable validators.

3. Slashing and Economic Penalties:

Validators face penalties for malicious behavior, such as failing to validate correctly or acting dishonestly. The slashing mechanism enforces security by deducting a portion of their staked tokens, ensuring validators follow the network's best interests.

4. Epoch Rotation and Validator Selection:

Validators are rotated regularly during epochs to ensure fairness and prevent centralization. Each epoch reshuffles validators, allowing the protocol to balance decentralization with performance.

Fees on the NEAR Blockchain:

1. Transaction Fees:

Users pay fees in NEAR tokens for transaction processing, which are burned to reduce the total circulating supply, introducing a potential deflationary effect over time. Validators also receive a portion of transaction fees as additional rewards, providing an ongoing incentive for network maintenance.

2. Storage Fees:

NEAR Protocol charges storage fees based on the amount of blockchain storage consumed by accounts, contracts, and data. This requires users to hold NEAR tokens as a deposit proportional to their storage usage, ensuring the efficient use of network resources.

3. Redistribution and Burning:

A portion of the transaction fees (burned NEAR tokens) reduces the overall supply, while the rest is distributed to validators as compensation for their work. The burning mechanism helps maintain long-term economic sustainability and potential value appreciation for NEAR holders.

4. Reserve Requirement:

Users must maintain a minimum account balance and reserves for data storage, encouraging efficient use of resources and preventing spam attacks.

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- **Staking Rewards:** Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.
- **Transaction Fees:** Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.

2. Delegators:

- **Delegated Staking:** Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.

3. Economic Security:

- **Slashing:** Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
- **Opportunity Cost:** By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Fees Applicable on the Solana Blockchain

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.

2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.

3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.

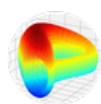
4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) avalanche, binance_smart_chain, ethereum, gnosis_chain, near_protocol, solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Curve DAO Token

CRV | P8DXFQ5LD

Quantitative information

Quantitative sustainability indicators for Curve DAO Token

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Curve DAO Token	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	5797.02320	kWh/a

Qualitative information

S.4 Consensus Mechanism

Curve DAO Token is present on the following networks: Arbitrum, Ethereum, Fantom, Gnosis Chain, Solana.

Arbitrum is an optimistic rollup that processes transactions on a Layer 2 network and relies on Ethereum for data availability and settlement. A sequencer orders incoming transactions, executes them and publishes compressed transaction batches to Ethereum. Arbitrum nodes can independently reconstruct and verify the resulting Layer 2 state using the transaction data published on the parent chain. Validators submit assertions representing the state of the network. Under the BoLD dispute protocol, conflicting or incorrect assertions may be challenged and resolved through an interactive fraud-proof process on Ethereum. Once an assertion has been confirmed and the applicable challenge process has been completed, the corresponding Layer 2 state is accepted for settlement purposes.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the

canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

Fantom operates on the Lachesis Protocol, an Asynchronous Byzantine Fault Tolerant (aBFT) consensus mechanism designed for fast, secure, and scalable transactions.

Core Components of Fantom's Consensus:

1. Lachesis Protocol (aBFT):

- Asynchronous and Leaderless: Lachesis allows nodes to reach consensus independently without relying on a central leader, enhancing decentralization and speed.
- DAG Structure: Instead of a linear blockchain, Lachesis uses a Directed Acyclic Graph (DAG) structure, allowing multiple transactions to be processed in parallel across nodes. This structure supports high throughput, making the network suitable for applications requiring rapid transaction processing.

2. Event Blocks and Instant Finality:

- Event Blocks: Transactions are grouped into event blocks, which are validated asynchronously by multiple validators. When enough validators confirm an event block, it becomes part of the Fantom network's history.
- Instant Finality: Transactions on Fantom achieve immediate finality, meaning they are confirmed and cannot be reversed. This property is ideal for applications requiring fast and irreversible transactions.

Gnosis Chain – Consensus Mechanism Gnosis Chain employs a dual-layer structure to balance scalability and security, using Proof of Stake (PoS) for its core consensus and transaction finality.

Core Components:

- Two-Layer Structure Layer 1: Gnosis Beacon Chain The Gnosis Beacon Chain operates on a Proof of Stake (PoS) mechanism, acting as the security and consensus backbone. Validators stake GNO tokens on the Beacon Chain and validate transactions, ensuring network security and finality.
- Layer 2: Gnosis xDai Chain processes transactions and dApp interactions, providing high-speed, low-cost transactions. Layer 2 transaction data is finalized on the Gnosis Beacon Chain, creating an integrated framework where Layer 1 ensures security and finality, and Layer 2 enhances scalability. Validator Role and Staking Validators on the Gnosis Beacon Chain stake GNO tokens and participate in consensus by validating blocks. This setup ensures that validators have an economic interest in maintaining the security and integrity of both the Beacon Chain (Layer 1) and the xDai Chain (Layer 2). Cross-Layer Security Transactions on Layer 2 are ultimately finalized on Layer 1, providing security and finality to all activities on the Gnosis Chain. This architecture allows Gnosis Chain to combine the speed and cost efficiency of Layer 2 with the security guarantees of a PoS-secured Layer 1, making it suitable for both high-frequency applications and secure asset management.

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Curve DAO Token is present on the following networks: Arbitrum, Ethereum, Fantom, Gnosis Chain, Solana.

Transactions on Arbitrum are subject to fees paid in ETH. The total fee generally consists of a Layer 2 execution component, which covers the computational resources required to process the transaction, and a parent-chain data component, which reflects the cost of publishing compressed transaction data to Ethereum. The amount payable therefore depends on the computational complexity of the transaction, the volume and compressibility of its data and the prevailing cost of data publication on Ethereum. Participants that submit or challenge state assertions under the dispute protocol must provide economic bonds. These bonds are intended to discourage incorrect assertions and compensate successful participants in the dispute process. Withdrawals through the canonical bridge become executable after the relevant Layer 2 state has been confirmed and the applicable challenge period has elapsed.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

Fantom's incentive model promotes network security through staking rewards, transaction fees, and delegation options, encouraging broad participation.

Incentive Mechanisms:

1. Staking Rewards for Validators:

- Earning Rewards in FTM: Validators who participate in the consensus process earn rewards in FTM tokens, proportional to the amount they have staked. This incentivizes validators to actively secure the network.
- Dynamic Staking Rate: Fantom's staking reward rate is dynamic, adjusting based on total FTM staked across the network. As more FTM is staked, individual rewards may decrease, maintaining a balanced reward structure that supports long-term network security.

2. Delegation for Token Holders:

Delegated Staking: Users who do not operate validator nodes can delegate their FTM tokens to validators. In return, they share in the staking rewards, encouraging wider participation in securing the network.

Applicable Fees:

- Transaction Fees in FTM: Users pay transaction fees in FTM tokens. The network's high throughput and DAG structure keep fees low, making Fantom ideal for decentralized applications (dApps) requiring frequent transactions.
- Efficient Fee Model: The low fees and scalability of the network make it cost-effective for users, fostering a favorable environment for high-volume applications.

The Gnosis Chain's incentive and fee models encourage both validator participation and network accessibility, using a dual-token system to maintain low transaction costs and effective staking rewards.

Incentive Mechanisms:

- Staking Rewards for Validators GNO Rewards: Validators earn staking rewards in GNO tokens for their participation in consensus and securing the network.
- Delegation Model: GNO holders who do not operate validator nodes can delegate their GNO tokens to validators, allowing them to share in staking rewards and encouraging broader participation in network security.
- Dual-Token Model GNO: Used for staking, governance, and validator rewards, GNO aligns long-term network security incentives with token holders' economic interests.
- xDai: Serves as the primary transaction currency, providing stable and low-cost transactions. The use of a stable token (xDai) for fees minimizes volatility and offers predictable costs for users and developers.

Applicable Fees:

Transaction Fees in xDai Users pay transaction fees in xDai, the stable fee token, making costs affordable and predictable. This model is especially suited for high-frequency applications and dApps where low transaction fees are essential. xDai transaction fees are redistributed to validators as part of their compensation, aligning their rewards with network activity. Delegated Staking Rewards Through delegated staking, GNO holders can earn a share of staking rewards by delegating their tokens to active validators, promoting user participation in network security without requiring direct involvement in consensus operations.

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.
- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.

2. Delegators:

- Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.

3. Economic Security:

- Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
- Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties. Fees Applicable on the Solana Blockchain

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.

2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.

3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.

4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) arbitrum, ethereum, fantom, gnosis_chain, solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Aave Token

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Aave Token	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	4868.70453	kWh/a

Qualitative information

S.4 Consensus Mechanism

Aave Token is present on the following networks: Avalanche, Binance Smart Chain, Ethereum, Gnosis Chain, Huobi, Near Protocol, Polygon, Solana.

The Avalanche C-Chain uses the Snowman++ consensus mechanism, which is Avalanche's consensus model for linear blockchains and is implemented through the ProposerVM wrapper. Under this model, validators repeatedly query a small random subset of other validators and converge on a preferred block once the required confidence thresholds are met. Only Primary Network validators are entitled to validate the C-Chain. To participate as a validator on Avalanche mainnet, a node must stake a minimum number of token. Token holders may also participate indirectly by delegating an existing validator. Validator identity and admission to staking require the relevant staking credentials, including BLS proofs of possession under the current staking framework. For block production, Snowman++ uses stake-weighted proposer windows. Through the ProposerVM, block-building opportunities are assigned to proposers in 5-second windows, after which block production may fall back more broadly to validators if necessary. This mechanism is intended to regulate block production while preserving network liveness. Consensus voting itself remains based on repeated sub-sampled polling rather than fixed validator committees. Avalanche documentation describes the finality model as sub-second and treated by the protocol as final and irreversible once accepted, while noting that safety is probabilistic in the formal sense because the probability of conflicting acceptance can be reduced to an arbitrarily low level through the protocol parameters. The protocol does not rely on slashing of staked principal. Instead, validator reward eligibility depends on compliance with protocol conditions, including uptime requirements.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum’s consensus mechanism and Layer 2 functionality.

Gnosis Chain – Consensus Mechanism Gnosis Chain employs a dual-layer structure to balance scalability and security, using Proof of Stake (PoS) for its core consensus and transaction finality.

Core Components:

- **Two-Layer Structure** Layer 1: Gnosis Beacon Chain The Gnosis Beacon Chain operates on a Proof of Stake (PoS) mechanism, acting as the security and consensus backbone. Validators stake GNO tokens on the Beacon Chain and validate transactions, ensuring network security and finality.
 - **Layer 2: Gnosis xDai Chain** processes transactions and dApp interactions, providing high-speed, low-cost transactions. Layer 2 transaction data is finalized on the Gnosis Beacon Chain, creating an integrated framework where Layer 1 ensures security and finality, and Layer 2 enhances scalability.
- Validator Role and Staking** Validators on the Gnosis Beacon Chain stake GNO tokens and participate in consensus by validating blocks. This setup ensures that validators have an economic interest in maintaining the security and integrity of both the Beacon Chain (Layer 1) and the xDai Chain (Layer 2). **Cross-Layer Security** Transactions on Layer 2 are ultimately finalized on Layer 1, providing security and finality to all activities on the Gnosis Chain. This architecture allows Gnosis Chain to combine the speed and cost efficiency of Layer 2 with the security guarantees of a PoS-secured Layer 1, making it suitable for both high-frequency applications and secure asset management.

The Huobi Eco Chain (HECO) blockchain employs a Hybrid-Proof-of-Stake (HPoS) consensus mechanism, combining elements of Proof-of-Stake (PoS) to enhance transaction efficiency and scalability.

Key Features of HECO's Consensus Mechanism:

1. Validator Selection: HECO supports up to 21 validators, selected based on their stake in the network.
2. Transaction Processing: Validators are responsible for processing transactions and adding blocks to the blockchain.
3. Transaction Finality: The consensus mechanism ensures quick finality, allowing for rapid confirmation of transactions.
4. Energy Efficiency: By utilizing PoS elements, HECO reduces energy consumption compared to traditional Proof-of-Work systems.

The NEAR Protocol uses a unique consensus mechanism combining Proof of Stake (PoS) and a novel approach called Doomslug, which enables high efficiency, fast transaction processing, and secure finality in its operations.

Core Concepts:

1. Doomslug and Proof of Stake:
 - NEAR's consensus mechanism primarily revolves around PoS, where validators stake NEAR tokens to participate in securing the network. However, NEAR's implementation is enhanced with the Doomslug protocol.
 - Doomslug allows the network to achieve fast block finality by requiring blocks to be confirmed in two stages. Validators propose blocks in the first step, and finalization occurs when two-thirds of validators approve the block, ensuring rapid transaction confirmation.
2. Sharding with Nightshade:
 - NEAR uses a dynamic sharding technique called Nightshade. This method splits the network into multiple shards, enabling parallel processing of transactions across the network, thus significantly increasing throughput. Each shard processes a portion of transactions, and the outcomes are merged into a single "snapshot" block.
 - This sharding approach ensures scalability, allowing the network to grow and handle increasing demand efficiently.

Consensus Process:

1. Validator Selection:
 - Validators are selected to propose and validate blocks based on the amount of NEAR tokens staked. This selection process is designed to ensure that only validators with significant stakes and community trust participate in securing the network.
2. Transaction Finality:
 - NEAR achieves transaction finality through its PoS-based system, where validators vote on blocks. Once two-thirds of validators approve a block, it reaches finality under Doomslug, meaning that no forks can alter the confirmed state.
3. Epochs and Rotation:
 - Validators are rotated in epochs to ensure fairness and decentralization. Epochs are intervals in which validators are reshuffled, and new block proposers are selected, ensuring a balance between performance and decentralization.

Polygon PoS is an EVM-compatible sidechain that operates with a Proof-of-Stake consensus mechanism and periodically submits checkpoints to the Ethereum mainnet. The network maintains its own validator set and processes transactions independently from Ethereum, while using Ethereum smart contracts for staking-related functions and checkpoint verification. Polygon PoS therefore uses Ethereum as a staking and checkpointing layer, but does not rely on Ethereum for full transaction execution or transaction data availability. The Polygon-side architecture consists of two

primary node layers. The Bor layer is responsible for transaction execution and block production. The Heimdall layer is responsible for validator coordination, staking-related monitoring, consensus, and checkpoint finalisation. Heimdall is based on Cosmos SDK and CometBFT and aggregates blocks produced by Bor into periodic Merkle-root checkpoints that are submitted to smart contracts on the Ethereum mainnet. Validators participate in the network by staking POL tokens. Token holders may delegate POL tokens to validators, contributing to the validator's effective stake and participating indirectly in network validation. Following the Rio upgrade, Polygon PoS uses a Validator-Elected Block Producer model. Under this model, validators elect the block producer or block producers for a span, rather than relying on the previous stake-weighted selection model for multiple block producers over shorter intervals. Block production and transaction execution are performed on the Bor layer, while Heimdall validators coordinate consensus and checkpoint finalisation. At regular intervals, Heimdall validators aggregate blocks into a Merkle root and submit the resulting checkpoint to Ethereum smart contracts. These checkpoints provide an additional verification layer and support cross-chain verification, including in the context of asset transfers between Polygon PoS and Ethereum. This design enables higher transaction throughput and lower transaction costs than the Ethereum mainnet, while maintaining a technical connection to Ethereum through staking contracts and periodic checkpointing. Polygon PoS should therefore be understood as an independent sidechain or commit-chain architecture, rather than a rollup that inherits full execution and data availability security from Ethereum.

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence

to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Aave Token is present on the following networks: Avalanche, Binance Smart Chain, Ethereum, Gnosis Chain, Huobi, Near Protocol, Polygon, Solana.

The Avalanche C-Chain is secured economically through the native AVAX token. Validator incentives are based primarily on staking rewards, not on redistribution of C-Chain transaction fees. A fixed amount of 360 million AVAX was minted at genesis, while additional AVAX is minted over time as validator rewards, subject to Avalanche's capped token supply framework. Validator rewards are paid at the end of the staking period and are determined by factors such as the validator's stake and compliance with staking conditions. Unlike some proof-of-stake systems, the Avalanche Primary Network does not use slashing of bonded principal as an ordinary penalty mechanism. Instead, the main protocol-level economic consequence for underperformance is the loss of reward eligibility. Where a validator fails to satisfy the applicable uptime requirement during its staking term, that validator does not receive the corresponding staking reward. Transaction fees apply on the C-Chain for transfers and smart-contract execution. The fee model follows EIP-1559 logic, meaning that transactions are priced through a dynamic base fee mechanism. In contrast to Ethereum's validator tip model, C-Chain transaction fees are burned rather than distributed to validators. This means that C-Chain fees function as a supply-reduction mechanism and are intended in part to offset inflation arising from the minting of validator rewards. In addition to ordinary transaction and smart-contract execution fees, Avalanche documentation also recognises protocol fees in connection with other network operations on other chains of the Primary Network, such as certain import or export operations and staking-related actions. However, for the C-Chain itself, the core applicable fee category is the gas fee for transaction inclusion and contract execution, and those fees are handled through the protocol burn mechanism rather than paid to validators or a treasury.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

The Gnosis Chain's incentive and fee models encourage both validator participation and network accessibility, using a dual-token system to maintain low transaction costs and effective staking rewards.

Incentive Mechanisms:

- Staking Rewards for Validators GNO Rewards: Validators earn staking rewards in GNO tokens for their participation in consensus and securing the network.

- Delegation Model: GNO holders who do not operate validator nodes can delegate their GNO tokens to validators, allowing them to share in staking rewards and encouraging broader participation in network security.
- Dual-Token Model GNO: Used for staking, governance, and validator rewards, GNO aligns long-term network security incentives with token holders' economic interests.
- xDai: Serves as the primary transaction currency, providing stable and low-cost transactions. The use of a stable token (xDai) for fees minimizes volatility and offers predictable costs for users and developers.

Applicable Fees:

Transaction Fees in xDai Users pay transaction fees in xDai, the stable fee token, making costs affordable and predictable. This model is especially suited for high-frequency applications and dApps where low transaction fees are essential. xDai transaction fees are redistributed to validators as part of their compensation, aligning their rewards with network activity. Delegated Staking Rewards Through delegated staking, GNO holders can earn a share of staking rewards by delegating their tokens to active validators, promoting user participation in network security without requiring direct involvement in consensus operations.

The Huobi Eco Chain (HECO) blockchain employs a Hybrid-Proof-of-Stake (HPoS) consensus mechanism, combining elements of Proof-of-Stake (PoS) to enhance transaction efficiency and scalability.

Incentive Mechanism:

1. Validator Rewards:

Validators are selected based on their stake in the network. They process transactions and add blocks to the blockchain. Validators receive rewards in the form of transaction fees for their role in maintaining the blockchain's integrity.

2. Staking Participation:

Users can stake Huobi Token (HT) to become validators or delegate their tokens to existing validators. Staking helps secure the network and, in return, participants receive a portion of the transaction fees as rewards.

Applicable Fees:

1. Transaction Fees (Gas Fees):

Users pay gas fees in HT tokens to execute transactions and interact with smart contracts on the HECO network. These fees compensate validators for processing and validating transactions.

2. Smart Contract Execution Fees:

Deploying and interacting with smart contracts incur additional fees, which are also paid in HT tokens. These fees cover the computational resources required to execute contract code.

NEAR Protocol employs several economic mechanisms to secure the network and incentivize participation.

Incentive Mechanisms to Secure Transactions:

1. Staking Rewards:

Validators and delegators secure the network by staking NEAR tokens. Validators earn around 5% annual inflation, with 90% of newly minted tokens distributed as staking rewards. Validators propose blocks, validate transactions, and receive a share of these rewards based on their staked tokens. Delegators earn rewards proportional to their delegation, encouraging broad participation.

2. Delegation:

Token holders can delegate their NEAR tokens to validators to increase the validator's stake and improve the chances of being selected to validate transactions. Delegators share in the validator's rewards based on their delegated tokens, incentivizing users to support reliable validators.

3. Slashing and Economic Penalties:

Validators face penalties for malicious behavior, such as failing to validate correctly or acting dishonestly. The slashing mechanism enforces security by deducting a portion of their staked tokens, ensuring validators follow the network's best interests.

4. Epoch Rotation and Validator Selection:

Validators are rotated regularly during epochs to ensure fairness and prevent centralization. Each epoch reshuffles validators, allowing the protocol to balance decentralization with performance.

Fees on the NEAR Blockchain:

1. Transaction Fees:

Users pay fees in NEAR tokens for transaction processing, which are burned to reduce the total circulating supply, introducing a potential deflationary effect over time. Validators also receive a portion of transaction fees as additional rewards, providing an ongoing incentive for network maintenance.

2. Storage Fees:

NEAR Protocol charges storage fees based on the amount of blockchain storage consumed by accounts, contracts, and data. This requires users to hold NEAR tokens as a deposit proportional to their storage usage, ensuring the efficient use of network resources.

3. Redistribution and Burning:

A portion of the transaction fees (burned NEAR tokens) reduces the overall supply, while the rest is distributed to validators as compensation for their work. The burning mechanism helps maintain long-term economic sustainability and potential value appreciation for NEAR holders.

4. Reserve Requirement:

Users must maintain a minimum account balance and reserves for data storage, encouraging efficient use of resources and preventing spam attacks.

Polygon PoS uses economic incentives to support validator participation, transaction processing, and network operation. Validators stake POL tokens and participate in block production, validation, voting, and checkpoint finalisation. Validators may receive rewards connected to their participation in the network, including rewards linked to validation activities and transaction-fee allocation, depending on the applicable protocol rules. Token holders who do not operate validator infrastructure may delegate POL tokens to validators. Delegators may receive a share of rewards attributable to the validator to whom they delegate, subject to the validator's commission and applicable protocol rules. Delegation increases the validator's effective stake and may affect its role in the validator set and related network processes. Following the Rio upgrade, Polygon PoS introduced a Validator-Elected Block Producer model, under which validators elect the block producer or block producers for a span. Publicly described protocol changes associated with this model also provide for redistribution of fees, including maximum extractable value-related fees where applicable, to non-producing validators under the relevant protocol design. This changes the incentive structure from the previous model in which block production selection was more directly described by reference to stake-weighted producer selection. Polygon PoS includes protocol specifications for validator penalties, including slashing-related concepts. Transactions on Polygon PoS require payment of network fees in POL. Fees apply to ordinary token transfers, smart contract deployment, and smart contract interaction. The amount of fees may vary depending on network demand, transaction complexity, and computational resources required. Because Polygon PoS processes transactions independently from Ethereum, transaction fees are generally designed to be lower than

equivalent activity on the Ethereum mainnet, although actual fees may change according to network conditions and protocol parameters.

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- **Staking Rewards:** Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.
- **Transaction Fees:** Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.

2. Delegators:

- **Delegated Staking:** Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.

3. Economic Security:

- **Slashing:** Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
- **Opportunity Cost:** By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Fees Applicable on the Solana Blockchain

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.

2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.

3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.

4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) avalanche, binance_smart_chain, ethereum, gnosis_chain, huobi, near_protocol, polygon, solana is

calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Shape

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Shape	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	4336.20000	kWh/a

Qualitative information

S.4 Consensus Mechanism

Shape is implemented as a Layer 2 network on Ethereum and therefore relies on Ethereum's underlying consensus and security model. Transaction ordering is handled by a sequencer, while final settlement is performed on Ethereum. As a result, the network inherits Ethereum's Proof-of-Stake consensus and validator-based finality.

S.5 Incentive Mechanisms and Applicable Fees

Transactions on Shape require the payment of gas fees, similar to Ethereum, which are used to process and execute operations on the network. These fees are collected by the sequencer. In the future, the SHAPE token is intended to be used to support participation in network security mechanisms, including staking-based systems.

S.9 Energy consumption sources and methodologies

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. Due to the

structure of this network, it is not only the mainnet that is responsible for energy consumption. In order to calculate the structure adequately, a proportion of the energy consumption of the connected network, ethereum, must also be taken into account, because the connected network is also responsible for security. This proportion is determined on the basis of gas consumption. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Pump.fun

PUMP | C2F189JNL

Quantitative information

Quantitative sustainability indicators for Pump.fun

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Pump.fun	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	4242.44244	kWh/a

Qualitative information

S.4 Consensus Mechanism

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.

- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.
- 2. Delegators:
 - Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.
- 3. Economic Security:
 - Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
 - Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.
2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.
3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.
4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for OpenLedger

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	OpenLedger	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	3988.29944	kWh/a

Qualitative information

S.4 Consensus Mechanism

OpenLedger is present on the following networks: Binance Smart Chain, Ethereum, Open Ledger.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon

Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

OpenLedger is built as an Ethereum-Layer-2 rollup using the OP Stack. It batches and orders transactions off-chain, submitting them to Ethereum for final settlement, inheriting Ethereum's security via fraud-proof mechanisms.

S.5 Incentive Mechanisms and Applicable Fees

OpenLedger is present on the following networks: Binance Smart Chain, Ethereum, Open Ledger.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH

and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

The native token, OPEN, is used for gas fees, staking, payments for model inference, and access to datasets and model registries. Contributors of data receive OPEN tokens via a “Proof of Attribution” mechanism when their data influences model outputs. OPEN holders also participate in governance, and a portion of token supply is allocated to ecosystem incentives.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

To determine the energy consumption of a token, the energy consumption of the network(s) binance_smart_chain, ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Pepe

PEPE | J41R6PF81

Quantitative information

Quantitative sustainability indicators for Pepe

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Pepe	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	3598.61098	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Global Dollar

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Global Dollar	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	3573.43991	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Interlay

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Interlay	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	3153.60000	kWh/a

Qualitative information

S.4 Consensus Mechanism

Polkadot, a heterogeneous multi-chain framework designed to enable different blockchains to interoperate, uses a sophisticated consensus mechanism known as Nominated Proof-of-Stake (NPoS). This mechanism combines elements of Proof-of-Stake (PoS) and a layered consensus model involving multiple roles and stages.

Core Components:

1. **Validators:** Validators are responsible for producing new blocks and finalizing the relay chain, Polkadot's main chain. They stake DOT tokens and validate transactions, ensuring the security and integrity of the network.
2. **Nominators:** Nominators delegate their stake to trusted validators, choosing which validators they believe will act honestly and effectively. They share in the rewards and penalties of the validators they nominate.
3. **Collators:** Collators maintain parachains (individual blockchains that connect to the Polkadot relay chain) by collecting transactions from users and producing state transition proofs for validators.
4. **Fishermen:** Fishermen monitor the network for malicious activity. They report bad behavior to the validators to help maintain network security.

Consensus Process: Polkadot's consensus mechanism operates through a combination of two key protocols: GRANDPA (GHOST-based Recursive Ancestor Deriving Prefix Agreement) and BABE (Blind Assignment for Blockchain Extension).

1. BABE (Block Production): BABE is the block production mechanism. It operates similarly to a lottery, where validators are pseudo-randomly assigned slots to produce blocks based on their stake. Each validator signs the blocks they produce, which are then propagated through the network.
2. GRANDPA (Finality): GRANDPA is the finality gadget that provides a higher level of security by finalizing blocks after they are produced. Unlike traditional blockchains where blocks are considered final after a number of confirmations, GRANDPA allows for asynchronous finality. Validators vote on chains, and once a supermajority agrees, the chain is finalized instantly.

Detailed Steps:

1. Block Production (BABE):
 - Slot Allocation: Validators are selected to produce blocks in specific time slots.
 - Block Proposal: The selected validator for a slot proposes a block, including new transactions and state changes.
2. Block Propagation and Preliminary Consensus: Proposed blocks are propagated across the network, where other validators verify the correctness of the transactions and state transitions.
3. Finalization (GRANDPA):
 - Voting on Blocks: Validators vote on the chains they believe to be the correct history.
 - Supermajority Agreement: Once more than two-thirds of validators agree on a block, it is finalized.
 - Instant Finality: This finality process ensures that once a block is finalized, it is irreversible and becomes part of the canonical chain.
4. Rewards and Penalties: Validators and nominators earn rewards for participating in the consensus process and maintaining network security. Misbehavior, such as producing invalid blocks or being offline, results in penalties, including slashing of staked tokens.

S.5 Incentive Mechanisms and Applicable Fees

Polkadot uses a consensus mechanism called Nominated Proof-of-Stake (NPoS), which involves a combination of validators, nominators, and a unique layered consensus process to secure the network:

Incentive Mechanisms:

1. Validators:
 - Staking Rewards: Validators are responsible for producing new blocks and finalizing the relay chain. They are incentivized with staking rewards, which are distributed in proportion to their stake and their performance in the consensus process. Validators earn these rewards for maintaining uptime and correctly validating transactions.
 - Commission: Validators can set a commission rate that they charge on the rewards earned by their nominators. This incentivizes them to perform well to attract more nominators.
2. Nominators:
 - Delegation: Nominators stake their tokens by delegating them to trusted validators. They share in the rewards earned by the validators they support. This mechanism incentivizes nominators to carefully choose reliable validators.

- Rewards Distribution: The rewards are distributed among validators and their nominators based on the amount of stake contributed by each party. This ensures that both parties are incentivized to maintain the network's security.

3. Collators:

Parachain Maintenance: Collators maintain parachains by collecting transactions and producing state transition proofs for validators. They are incentivized through rewards for their role in keeping the parachain operational and secure.

4. Fishermen:

Monitoring: Fishermen are responsible for monitoring the network for malicious activities. They are rewarded for identifying and reporting malicious behavior, which helps maintain the network's security.

5. Economic Penalties:

- Slashing: Validators and nominators face penalties in the form of slashing if they engage in malicious activities such as double-signing or being offline for extended periods. Slashing results in the loss of a portion of their staked tokens, which serves as a strong deterrent against bad behavior.
- Unbonding Period: To withdraw staked tokens, participants must go through an unbonding period during which their tokens are still at risk of being slashed. This ensures continued network security even when validators or nominators decide to exit.

Fees on the Polkadot Blockchain:

1. Transaction Fees:

- Dynamic Fees: Transaction fees on Polkadot are dynamic, adjusting based on network demand and the complexity of the transaction. This model ensures that fees remain fair and proportional to the network's usage.
- Fee Burn: A portion of the transaction fees is burned (permanently removed from circulation), which helps to control inflation and can potentially increase the value of the remaining tokens.

2. Smart Contract Fees:

Execution Costs: Fees for deploying and interacting with smart contracts on Polkadot are based on the computational resources required. This encourages efficient use of network resources.

3. Parachain Slot Auction Fees:

Bidding for Slots: Projects that want to secure a parachain slot must participate in a slot auction. They bid DOT tokens, and the highest bidders win the right to operate a parachain for a specified period. This process ensures that only serious projects with significant backing can secure parachain slots, contributing to the network's overall quality and security.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) polkadot is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



SHIBA INU

SHIB | M4HFTFNPC

Quantitative information

Quantitative sustainability indicators for SHIBA INU

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	SHIBA INU	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	2831.77990	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Sui Name Service

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Sui Name Service	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	2763.07920	kWh/a

Qualitative information

S.4 Consensus Mechanism

The Sui blockchain utilizes a Byzantine Fault Tolerant (BFT) consensus mechanism optimized for high throughput and low latency.

Core Components:

1. Mysten Consensus Protocol:

- The Sui consensus is based on Mysten Labs' Byzantine Fault Tolerance (BFT) protocol, which builds on principles of Practical Byzantine Fault Tolerance (pBFT) but introduces key optimizations for performance.
- Leaderless Design: Unlike traditional BFT models, Sui does not rely on a single leader to propose blocks. Validators can propose blocks simultaneously, increasing efficiency and reducing the risks associated with leader failure or attacks.
- Parallel Processing: Transactions can be processed in parallel, maximizing network throughput by utilizing multiple cores and threads. This allows for faster confirmation of transactions and high scalability.

2. Transaction Validation:

Validators are responsible for receiving transaction requests from clients and processing them. Each transaction includes digital signatures and must meet the network's rules to be considered valid. Validators can propose transactions simultaneously, unlike many other networks that require a sequential, leader-driven process.

3. Optimistic Execution:

Optimistic Consensus: Sui allows validators to process certain non-contentious, independent transactions without waiting for full consensus. This is known as optimistic execution and helps reduce transaction latency for many use cases, allowing for fast finality in most cases.

4. Finality and Latency:

The system only requires three rounds of communication between validators to finalize a transaction. This results in low-latency consensus and rapid transaction confirmation times, achieving scalability while maintaining security.

5. Fault Tolerance:

The system can tolerate up to one-third of validators being faulty or malicious without compromising the integrity of the consensus process.

S.5 Incentive Mechanisms and Applicable Fees

Security and Economic Incentives:

1. Validators:

Validators stake SUI tokens to participate in the consensus process. They earn rewards for validating transactions and securing the network.

2. Slashing:

Validators can be penalized (slashed) for malicious behavior, such as double-signing or failing to properly validate transactions. This helps maintain network security and incentivizes honest behavior.

3. Delegation:

Token holders can delegate their SUI tokens to trusted validators. In return, they share in the rewards earned by validators. This encourages widespread participation in securing the network.

Fees on the SUI Blockchain:

1. Transaction Fees:

Users pay transaction fees to validators for processing and confirming transactions. These fees are calculated based on the computational resources required to process the transaction. Fees are paid in SUI tokens, which is the native cryptocurrency of the Sui blockchain.

2. Dynamic Fee Model:

The transaction fees on Sui are dynamic, meaning they adjust based on network demand and the complexity of the transactions being processed.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) sui is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Numeraire

NMR | TCRZ9GZRF

Quantitative information

Quantitative sustainability indicators for Numeraire

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Numeraire	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	2736.27167	kWh/a

Qualitative information

S.4 Consensus Mechanism

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S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Lighter

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Lighter	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	2565.25026	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for ENA

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	ENA	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	2541.99362	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for DeepBook Token

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	DeepBook Token	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	2239.57793	kWh/a

Qualitative information

S.4 Consensus Mechanism

The Sui blockchain utilizes a Byzantine Fault Tolerant (BFT) consensus mechanism optimized for high throughput and low latency.

Core Components:

1. Mysten Consensus Protocol:

- The Sui consensus is based on Mysten Labs' Byzantine Fault Tolerance (BFT) protocol, which builds on principles of Practical Byzantine Fault Tolerance (pBFT) but introduces key optimizations for performance.
- Leaderless Design: Unlike traditional BFT models, Sui does not rely on a single leader to propose blocks. Validators can propose blocks simultaneously, increasing efficiency and reducing the risks associated with leader failure or attacks.
- Parallel Processing: Transactions can be processed in parallel, maximizing network throughput by utilizing multiple cores and threads. This allows for faster confirmation of transactions and high scalability.

2. Transaction Validation:

Validators are responsible for receiving transaction requests from clients and processing them. Each transaction includes digital signatures and must meet the network's rules to be considered valid. Validators can propose transactions simultaneously, unlike many other networks that require a sequential, leader-driven process.

3. Optimistic Execution:

Optimistic Consensus: Sui allows validators to process certain non-contentious, independent transactions without waiting for full consensus. This is known as optimistic execution and helps reduce transaction latency for many use cases, allowing for fast finality in most cases.

4. Finality and Latency:

The system only requires three rounds of communication between validators to finalize a transaction. This results in low-latency consensus and rapid transaction confirmation times, achieving scalability while maintaining security.

5. Fault Tolerance:

The system can tolerate up to one-third of validators being faulty or malicious without compromising the integrity of the consensus process.

S.5 Incentive Mechanisms and Applicable Fees

Security and Economic Incentives:

1. Validators:

Validators stake SUI tokens to participate in the consensus process. They earn rewards for validating transactions and securing the network.

2. Slashing:

Validators can be penalized (slashed) for malicious behavior, such as double-signing or failing to properly validate transactions. This helps maintain network security and incentivizes honest behavior.

3. Delegation:

Token holders can delegate their SUI tokens to trusted validators. In return, they share in the rewards earned by validators. This encourages widespread participation in securing the network.

Fees on the SUI Blockchain:

1. Transaction Fees:

Users pay transaction fees to validators for processing and confirming transactions. These fees are calculated based on the computational resources required to process the transaction. Fees are paid in SUI tokens, which is the native cryptocurrency of the Sui blockchain.

2. Dynamic Fee Model:

The transaction fees on Sui are dynamic, meaning they adjust based on network demand and the complexity of the transactions being processed.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) sui is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Walrus

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Walrus	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	2239.57793	kWh/a

Qualitative information

S.4 Consensus Mechanism

The Sui blockchain utilizes a Byzantine Fault Tolerant (BFT) consensus mechanism optimized for high throughput and low latency.

Core Components:

1. Mysten Consensus Protocol:

- The Sui consensus is based on Mysten Labs' Byzantine Fault Tolerance (BFT) protocol, which builds on principles of Practical Byzantine Fault Tolerance (pBFT) but introduces key optimizations for performance.
- Leaderless Design: Unlike traditional BFT models, Sui does not rely on a single leader to propose blocks. Validators can propose blocks simultaneously, increasing efficiency and reducing the risks associated with leader failure or attacks.
- Parallel Processing: Transactions can be processed in parallel, maximizing network throughput by utilizing multiple cores and threads. This allows for faster confirmation of transactions and high scalability.

2. Transaction Validation:

Validators are responsible for receiving transaction requests from clients and processing them. Each transaction includes digital signatures and must meet the network's rules to be considered valid. Validators can propose transactions simultaneously, unlike many other networks that require a sequential, leader-driven process.

3. Optimistic Execution:

Optimistic Consensus: Sui allows validators to process certain non-contentious, independent transactions without waiting for full consensus. This is known as optimistic execution and helps reduce transaction latency for many use cases, allowing for fast finality in most cases.

4. Finality and Latency:

The system only requires three rounds of communication between validators to finalize a transaction. This results in low-latency consensus and rapid transaction confirmation times, achieving scalability while maintaining security.

5. Fault Tolerance:

The system can tolerate up to one-third of validators being faulty or malicious without compromising the integrity of the consensus process.

S.5 Incentive Mechanisms and Applicable Fees

Security and Economic Incentives:

1. Validators:

Validators stake SUI tokens to participate in the consensus process. They earn rewards for validating transactions and securing the network.

2. Slashing:

Validators can be penalized (slashed) for malicious behavior, such as double-signing or failing to properly validate transactions. This helps maintain network security and incentivizes honest behavior.

3. Delegation:

Token holders can delegate their SUI tokens to trusted validators. In return, they share in the rewards earned by validators. This encourages widespread participation in securing the network.

Fees on the SUI Blockchain:

1. Transaction Fees:

Users pay transaction fees to validators for processing and confirming transactions. These fees are calculated based on the computational resources required to process the transaction. Fees are paid in SUI tokens, which is the native cryptocurrency of the Sui blockchain.

2. Dynamic Fee Model:

The transaction fees on Sui are dynamic, meaning they adjust based on network demand and the complexity of the transactions being processed.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) sui is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Raydium

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Raydium	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	2175.98593	kWh/a

Qualitative information

S.4 Consensus Mechanism

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):
 - Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
 - Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.
2. Proof of Stake (PoS):
 - Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
 - Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.

- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.
- 2. Delegators:
 - Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.
- 3. Economic Security:
 - Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
 - Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.
2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.
3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.
4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Fly.trade

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Fly.trade	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	2108.97000	kWh/a

Qualitative information

S.4 Consensus Mechanism

Sonic utilizes a Proof-of-Stake (PoS) consensus mechanism integrated with a Directed Acyclic Graph (DAG) architecture to enhance scalability and efficiency. Validators are required to stake the network's native \$S tokens, with a minimum of 500,000 \$S tokens needed to operate a validator node. This substantial staking requirement ensures that validators have a significant investment in the network's integrity.

S.5 Incentive Mechanisms and Applicable Fees

Sonic's economic model is designed to incentivize active participation from both validators and developers. Validators earn rewards through a combination of block rewards and transaction fees. The block reward system employs a dynamic Annual Percentage Rate (APR) mechanism.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) sonic is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset

in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



SPX6900

SPX | V9FVRLGKC

Quantitative information

Quantitative sustainability indicators for SPX6900

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	SPX6900	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	2084.52894	kWh/a

Qualitative information

S.4 Consensus Mechanism

SPX6900 is present on the following networks: Base, Ethereum, Solana.

Base does not operate its own consensus mechanism or decentralised validator set comparable to a Layer-1 blockchain. As an optimistic rollup Layer-2 network, Base relies on Ethereum's Proof-of-Stake consensus for the finality and settlement of data and state commitments posted to Ethereum Layer 1. Transaction ordering on Base is performed by a sequencer, currently operated by Coinbase. This sequencing function provides transaction ordering and execution on the Layer-2 network but does not constitute a decentralised consensus mechanism. The validity of Layer-2 state transitions is supported by an optimistic fault-proof mechanism, under which incorrect state commitments may be challenged during the applicable dispute period. Accordingly, Base's security model depends on Ethereum Layer 1 for settlement and finality, while Layer-2 transaction ordering remains dependent on the sequencer.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the

canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

SPX6900 is present on the following networks: Base, Ethereum, Solana.

Base does not have a native protocol token and does not operate a staking, validator reward or token issuance mechanism. Transaction fees on Base are paid in ETH. The economic incentives within the network are primarily related to transaction processing and network security. Transactions are executed on Base and periodically submitted to Ethereum Layer 1 in batches. As the cost of a Layer-1 submission is shared among multiple Layer-2 transactions, the average transaction cost per transaction may be lower than executing the same transactions directly on Ethereum Layer 1. The integrity of withdrawals from Base is supported by a fault-proof mechanism. Withdrawals are subject to a dispute period during which participants may challenge incorrect state commitments. The dispute process incorporates economic incentives intended to encourage honest behaviour and discourage invalid claims.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.

- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.
- 2. Delegators:
 - Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.
- 3. Economic Security:
 - Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
 - Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.
2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.
3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.
4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) base, ethereum, solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Ondo

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Ondo	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	2070.83389	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Arbitrum

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Arbitrum	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	2056.78270	kWh/a

Qualitative information

S.4 Consensus Mechanism

Arbitrum is present on the following networks: Arbitrum, Ethereum.

Arbitrum is an optimistic rollup that processes transactions on a Layer 2 network and relies on Ethereum for data availability and settlement. A sequencer orders incoming transactions, executes them and publishes compressed transaction batches to Ethereum. Arbitrum nodes can independently reconstruct and verify the resulting Layer 2 state using the transaction data published on the parent chain. Validators submit assertions representing the state of the network. Under the BoLD dispute protocol, conflicting or incorrect assertions may be challenged and resolved through an interactive fraud-proof process on Ethereum. Once an assertion has been confirmed and the applicable challenge process has been completed, the corresponding Layer 2 state is accepted for settlement purposes.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in

certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Arbitrum is present on the following networks: Arbitrum, Ethereum.

Transactions on Arbitrum are subject to fees paid in ETH. The total fee generally consists of a Layer 2 execution component, which covers the computational resources required to process the transaction, and a parent-chain data component, which reflects the cost of publishing compressed transaction data to Ethereum. The amount payable therefore depends on the computational complexity of the transaction, the volume and compressibility of its data and the prevailing cost of data publication on Ethereum. Participants that submit or challenge state assertions under the dispute protocol must provide economic bonds. These bonds are intended to discourage incorrect assertions and compensate successful participants in the dispute process. Withdrawals through the canonical bridge become executable after the relevant Layer 2 state has been confirmed and the applicable challenge period has elapsed.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) arbitrum, ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for MegaETH

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	MegaETH	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	2049.84000	kWh/a

Qualitative information

S.4 Consensus Mechanism

MegaETH is designed as a high-performance Ethereum Layer 2 and does not implement its own independent consensus mechanism. Instead, it relies on Ethereum's Proof-of-Stake consensus for security and final settlement. Transaction execution and ordering are handled off-chain by a centralized or semi-centralized sequencer, while the resulting state is ultimately verified and finalized on Ethereum.

S.5 Incentive Mechanisms and Applicable Fees

Transaction fees on MegaETH are paid for executing operations on the network and are expected to be significantly lower than on Ethereum mainnet due to its high-throughput design. Fees are collected by the sequencer and used to support network operations. The economic model may include additional incentives for infrastructure providers and ecosystem participants, while relying on Ethereum's base layer for long-term security guarantees.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) megaeth is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of

the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Kinetiq

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Kinetiq	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	2010.42000	kWh/a

Qualitative information

S.4 Consensus Mechanism

Hyperliquid is a decentralized perpetual exchange (DEX) built on its proprietary Layer 1 blockchain, Hyperliquid L1. At the core of its architecture is the HyperBFT consensus mechanism, inspired by the Hotstuff protocol, designed to meet the demands of high-frequency trading while maintaining security and consistency across the ecosystem.

S.5 Incentive Mechanisms and Applicable Fees

Hyperliquid incentivizes participants through its native token, HYPE. Validators and delegators earn rewards in HYPE for securing the network and participating in governance. Users can also earn HYPE by staking, providing liquidity, and engaging in other ecosystem activities. This dual-token system encourages active participation and supports the network's growth and stability.

Hyperliquid employs a dynamic fee model where transaction fees are based on network activity and the complexity of the transactions. These fees are paid by users conducting transactions on the network and are designed to cover the costs of processing transactions while incentivizing validators.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) hyperliquid is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for LOFI

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	LOFI	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	1973.62800	kWh/a

Qualitative information

S.4 Consensus Mechanism

The Sui blockchain utilizes a Byzantine Fault Tolerant (BFT) consensus mechanism optimized for high throughput and low latency.

Core Components:

1. Mysten Consensus Protocol:

- The Sui consensus is based on Mysten Labs' Byzantine Fault Tolerance (BFT) protocol, which builds on principles of Practical Byzantine Fault Tolerance (pBFT) but introduces key optimizations for performance.
- Leaderless Design: Unlike traditional BFT models, Sui does not rely on a single leader to propose blocks. Validators can propose blocks simultaneously, increasing efficiency and reducing the risks associated with leader failure or attacks.
- Parallel Processing: Transactions can be processed in parallel, maximizing network throughput by utilizing multiple cores and threads. This allows for faster confirmation of transactions and high scalability.

2. Transaction Validation:

Validators are responsible for receiving transaction requests from clients and processing them. Each transaction includes digital signatures and must meet the network's rules to be considered valid. Validators can propose transactions simultaneously, unlike many other networks that require a sequential, leader-driven process.

3. Optimistic Execution:

Optimistic Consensus: Sui allows validators to process certain non-contentious, independent transactions without waiting for full consensus. This is known as optimistic execution and helps reduce transaction latency for many use cases, allowing for fast finality in most cases.

4. Finality and Latency:

The system only requires three rounds of communication between validators to finalize a transaction. This results in low-latency consensus and rapid transaction confirmation times, achieving scalability while maintaining security.

5. Fault Tolerance:

The system can tolerate up to one-third of validators being faulty or malicious without compromising the integrity of the consensus process.

S.5 Incentive Mechanisms and Applicable Fees

Security and Economic Incentives:

1. Validators:

Validators stake SUI tokens to participate in the consensus process. They earn rewards for validating transactions and securing the network.

2. Slashing:

Validators can be penalized (slashed) for malicious behavior, such as double-signing or failing to properly validate transactions. This helps maintain network security and incentivizes honest behavior.

3. Delegation:

Token holders can delegate their SUI tokens to trusted validators. In return, they share in the rewards earned by validators. This encourages widespread participation in securing the network.

Fees on the SUI Blockchain:

1. Transaction Fees:

Users pay transaction fees to validators for processing and confirming transactions. These fees are calculated based on the computational resources required to process the transaction. Fees are paid in SUI tokens, which is the native cryptocurrency of the Sui blockchain.

2. Dynamic Fee Model:

The transaction fees on Sui are dynamic, meaning they adjust based on network demand and the complexity of the transactions being processed.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) sui is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Scallop

SCA | /

Quantitative information

Quantitative sustainability indicators for Scallop

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Scallop	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	1973.62800	kWh/a

Qualitative information

S.4 Consensus Mechanism

The Sui blockchain utilizes a Byzantine Fault Tolerant (BFT) consensus mechanism optimized for high throughput and low latency.

Core Components:

1. Mysten Consensus Protocol:

- The Sui consensus is based on Mysten Labs' Byzantine Fault Tolerance (BFT) protocol, which builds on principles of Practical Byzantine Fault Tolerance (pBFT) but introduces key optimizations for performance.
- Leaderless Design: Unlike traditional BFT models, Sui does not rely on a single leader to propose blocks. Validators can propose blocks simultaneously, increasing efficiency and reducing the risks associated with leader failure or attacks.
- Parallel Processing: Transactions can be processed in parallel, maximizing network throughput by utilizing multiple cores and threads. This allows for faster confirmation of transactions and high scalability.

2. Transaction Validation:

Validators are responsible for receiving transaction requests from clients and processing them. Each transaction includes digital signatures and must meet the network's rules to be considered valid. Validators can propose transactions simultaneously, unlike many other networks that require a sequential, leader-driven process.

3. Optimistic Execution:

Optimistic Consensus: Sui allows validators to process certain non-contentious, independent transactions without waiting for full consensus. This is known as optimistic execution and helps reduce transaction latency for many use cases, allowing for fast finality in most cases.

4. Finality and Latency:

The system only requires three rounds of communication between validators to finalize a transaction. This results in low-latency consensus and rapid transaction confirmation times, achieving scalability while maintaining security.

5. Fault Tolerance:

The system can tolerate up to one-third of validators being faulty or malicious without compromising the integrity of the consensus process.

S.5 Incentive Mechanisms and Applicable Fees

Security and Economic Incentives:

1. Validators:

Validators stake SUI tokens to participate in the consensus process. They earn rewards for validating transactions and securing the network.

2. Slashing:

Validators can be penalized (slashed) for malicious behavior, such as double-signing or failing to properly validate transactions. This helps maintain network security and incentivizes honest behavior.

3. Delegation:

Token holders can delegate their SUI tokens to trusted validators. In return, they share in the rewards earned by validators. This encourages widespread participation in securing the network.

Fees on the SUI Blockchain:

1. Transaction Fees:

Users pay transaction fees to validators for processing and confirming transactions. These fees are calculated based on the computational resources required to process the transaction. Fees are paid in SUI tokens, which is the native cryptocurrency of the Sui blockchain.

2. Dynamic Fee Model:

The transaction fees on Sui are dynamic, meaning they adjust based on network demand and the complexity of the transactions being processed.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) sui is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Convex Token

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Convex Token	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	1953.62891	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Cash

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Cash	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	1944.48715	kWh/a

Qualitative information

S.4 Consensus Mechanism

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):
 - Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
 - Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.
2. Proof of Stake (PoS):
 - Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
 - Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.

- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.
- 2. Delegators:
 - Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.
- 3. Economic Security:
 - Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
 - Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.
2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.
3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.
4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



PancakeSwap

CAKE | LZ3V3Z6FD

Quantitative information

Quantitative sustainability indicators for PancakeSwap

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	PancakeSwap	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	1921.14343	kWh/a

Qualitative information

S.4 Consensus Mechanism

PancakeSwap is present on the following networks: Aptos Coin, Arbitrum, Base, Binance Smart Chain, Ethereum, Linea, Zksync.

Aptos utilizes a Proof-of-Stake approach combined with a BFT consensus protocol to ensure high throughput, low latency, and secure transaction processing.

Core Components:

- Parallel Execution: Transactions are processed concurrently using Block-STM, a parallel execution engine, enabling high performance and scalability.
- Leader-Based BFT: A leader is selected among validators to propose blocks, while others validate and finalize transactions.
- Dynamic Validator Rotation: Validators are rotated regularly, enhancing decentralization and preventing collusion.
- Instant Finality: Transactions achieve finality once validated, ensuring that they are irreversible.

Arbitrum is an optimistic rollup that processes transactions on a Layer 2 network and relies on Ethereum for data availability and settlement. A sequencer orders incoming transactions, executes them and publishes compressed transaction batches to Ethereum. Arbitrum nodes can independently reconstruct and verify the resulting Layer 2 state using the transaction data published on the parent chain. Validators submit assertions representing the state of the network. Under the BoLD dispute protocol, conflicting or incorrect assertions may be challenged and resolved through

an interactive fraud-proof process on Ethereum. Once an assertion has been confirmed and the applicable challenge process has been completed, the corresponding Layer 2 state is accepted for settlement purposes.

Base does not operate its own consensus mechanism or decentralised validator set comparable to a Layer-1 blockchain. As an optimistic rollup Layer-2 network, Base relies on Ethereum's Proof-of-Stake consensus for the finality and settlement of data and state commitments posted to Ethereum Layer 1. Transaction ordering on Base is performed by a sequencer, currently operated by Coinbase. This sequencing function provides transaction ordering and execution on the Layer-2 network but does not constitute a decentralised consensus mechanism. The validity of Layer-2 state transitions is supported by an optimistic fault-proof mechanism, under which incorrect state commitments may be challenged during the applicable dispute period. Accordingly, Base's security model depends on Ethereum Layer 1 for settlement and finality, while Layer-2 transaction ordering remains dependent on the sequencer.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 "Cabinet" validators and 24 "Candidate" validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

The Linea Network uses a Zero-Knowledge Rollup (ZK-Rollup) architecture with a zkEVM for Ethereum compatibility, and its consensus is derived from Ethereum's own proof-of-stake security. While the Network has components like a sequencer for ordering transactions and a coordinator for network management, its consensus mechanism is fundamentally linked to the proof and verification process of zero-knowledge proofs and the security of the Ethereum mainnet. Instead of a typical decentralized consensus on a separate blockchain, the Network inherits its security and state finality from Ethereum.

zkSync operates as a Layer 2 scaling solution for Ethereum, leveraging zero-knowledge rollups (ZK-Rollups) to enable fast, cost-effective, and secure transactions. This consensus mechanism allows zkSync to offload transaction computation from Ethereum's Layer 1, ensuring scalability while maintaining Ethereum's base-layer security.

Core Components:

- Zero-Knowledge Rollups (ZK-Rollups):
zkSync aggregates multiple transactions off-chain and processes them in batches. A cryptographic proof, called a validity proof, is generated for each batch and submitted to the Ethereum mainnet. This ensures that all transactions are valid and compliant with Ethereum's rules without processing them individually on Layer 1.
- Validity Proofs:
zkSync uses zk-SNARKs (Succinct Non-Interactive Arguments of Knowledge) for its validity proofs. These proofs provide mathematical guarantees that transactions within a batch are valid, eliminating the need for Ethereum nodes to re-execute off-chain transactions.
- Sequencers:
Transactions on zkSync are ordered and processed by sequencers, which bundle transactions into batches. Sequencers maintain network efficiency and provide fast confirmations.
- Fraud Resistance:
Unlike Optimistic Rollups, zkSync relies on validity proofs rather than fraud proofs, meaning that transactions are final and secure as soon as the validity proof is accepted by Ethereum.
- Data Availability:
All transaction data is stored on-chain, ensuring that the network remains decentralized and users can reconstruct the state of zkSync at any time.

S.5 Incentive Mechanisms and Applicable Fees

PancakeSwap is present on the following networks: Aptos Coin, Arbitrum, Base, Binance Smart Chain, Ethereum, Linea, Zksync.

Incentive Mechanism:

- Validator Rewards: Validators earn rewards in APT tokens for validating transactions and producing blocks. Rewards are distributed proportionally based on the stake of validators and their delegators.
- Delegator Participation: APT token holders can delegate their tokens to validators, earning a share of the staking rewards without running their own nodes.
- Slashing Mechanism: Validators face penalties, such as losing staked tokens, for malicious actions or prolonged inactivity, ensuring accountability and network security.

Applicable Fees:

- Transaction Fees: Users pay transaction fees in APT tokens for sending transactions and interacting with smart contracts.
- Dynamic Fee Adjustment: Fees are dynamically adjusted based on network activity and resource usage, ensuring cost efficiency and preventing congestion.
- Fee Distribution: Transaction fees are distributed among validators and delegators, providing an additional incentive for network participation.

Transactions on Arbitrum are subject to fees paid in ETH. The total fee generally consists of a Layer 2 execution component, which covers the computational resources required to process the transaction, and a parent-chain data component, which reflects the cost of publishing compressed

transaction data to Ethereum. The amount payable therefore depends on the computational complexity of the transaction, the volume and compressibility of its data and the prevailing cost of data publication on Ethereum. Participants that submit or challenge state assertions under the dispute protocol must provide economic bonds. These bonds are intended to discourage incorrect assertions and compensate successful participants in the dispute process. Withdrawals through the canonical bridge become executable after the relevant Layer 2 state has been confirmed and the applicable challenge period has elapsed.

Base does not have a native protocol token and does not operate a staking, validator reward or token issuance mechanism. Transaction fees on Base are paid in ETH. The economic incentives within the network are primarily related to transaction processing and network security. Transactions are executed on Base and periodically submitted to Ethereum Layer 1 in batches. As the cost of a Layer-1 submission is shared among multiple Layer-2 transactions, the average transaction cost per transaction may be lower than executing the same transactions directly on Ethereum Layer 1. The integrity of withdrawals from Base is supported by a fault-proof mechanism. Withdrawals are subject to a dispute period during which participants may challenge incorrect state commitments. The dispute process incorporates economic incentives intended to encourage honest behaviour and discourage invalid claims.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

Like Ethereum, the Network uses a gas system, where gas is the unit of computational effort required to process a transaction. All gas fees on the Network are paid in Ether (ETH). The Network has a base fee that is designed to stabilize at 7 wei. The base fee still decreases or increases based on network traffic, similar to Ethereum, but it does not go below 7 wei. The Network does not require token staking for transaction validation purposes and thus provides no staking rewards. It does not offer incentives for running a full network node. It does charge fees collected by the sequencer for transaction processing. Those fees are paid in ETH, 20% of which are immediately burned while the remaining 80% are converted to Tokens and then burned.

zkSync incentivizes network participants through a streamlined fee structure and role-based rewards, designed to ensure security, scalability, and usability for both users and validators.

Incentive Mechanism:

- Validator Rewards: Validators, who generate validity proofs and secure the network, are compensated through transaction fees paid by users. Their role ensures that batches of transactions are processed efficiently and accurately.
- Sequencer Incentives: Sequencers are responsible for bundling and ordering transactions off-chain. They earn a share of the transaction fees for maintaining network performance and fast processing times.
- Ecosystem Growth Rewards: zkSync allocates resources to incentivize developers and projects building on its platform, fostering a robust ecosystem of dApps, DeFi protocols, and NFT marketplaces.

Applicable Fees:

- Transaction Fees: Users pay fees in Ether (ETH) for transactions on zkSync. These fees are significantly lower than Ethereum Layer 1 fees, as zkSync processes transactions off-chain and submits only aggregated proofs to the Ethereum mainnet.
- Fee Model: Fees are dynamically calculated based on the complexity of transactions (e.g., token transfers, smart contract interactions) and the cost of submitting validity proofs to Ethereum.
- Scalability Benefits: zkSync's efficient rollup architecture reduces gas fees for users while ensuring that validators and sequencers are appropriately compensated for their roles.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) `aptos_coin`, `arbitrum`, `base`, `binance_smart_chain`, `ethereum`, `linea`, `zksync` is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are

updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Paxos Gold

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Paxos Gold	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	1918.90040	kWh/a

Qualitative information

S.4 Consensus Mechanism

Paxos Gold is present on the following networks: Binance Smart Chain, Ethereum, Solana.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon

Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Paxos Gold is present on the following networks: Binance Smart Chain, Ethereum, Solana.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.
- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.

2. Delegators:

- Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.

3. Economic Security:

- Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
- Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties. Fees Applicable on the Solana Blockchain

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.

2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.

3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.

4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) binance_smart_chain, ethereum, solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Pendle

PENDLE | 5RJT6339X

Quantitative information

Quantitative sustainability indicators for Pendle

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Pendle	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	1675.21944	kWh/a

Qualitative information

S.4 Consensus Mechanism

Pendle is present on the following networks: Arbitrum, Binance Smart Chain, Ethereum.

Arbitrum is an optimistic rollup that processes transactions on a Layer 2 network and relies on Ethereum for data availability and settlement. A sequencer orders incoming transactions, executes them and publishes compressed transaction batches to Ethereum. Arbitrum nodes can independently reconstruct and verify the resulting Layer 2 state using the transaction data published on the parent chain. Validators submit assertions representing the state of the network. Under the BoLD dispute protocol, conflicting or incorrect assertions may be challenged and resolved through an interactive fraud-proof process on Ethereum. Once an assertion has been confirmed and the applicable challenge process has been completed, the corresponding Layer 2 state is accepted for settlement purposes.

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that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

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S.5 Incentive Mechanisms and Applicable Fees

Pendle is present on the following networks: Arbitrum, Binance Smart Chain, Ethereum.

Transactions on Arbitrum are subject to fees paid in ETH. The total fee generally consists of a Layer 2 execution component, which covers the computational resources required to process the transaction, and a parent-chain data component, which reflects the cost of publishing compressed transaction data to Ethereum. The amount payable therefore depends on the computational complexity of the transaction, the volume and compressibility of its data and the prevailing cost of data publication on Ethereum. Participants that submit or challenge state assertions under the dispute protocol must provide economic bonds. These bonds are intended to discourage incorrect assertions and compensate successful participants in the dispute process. Withdrawals through the canonical bridge become executable after the relevant Layer 2 state has been confirmed and the applicable challenge period has elapsed.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support

reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) arbitrum, binance_smart_chain, ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for EURC

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	EURC	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	1652.32550	kWh/a

Qualitative information

S.4 Consensus Mechanism

EURC is present on the following networks: Avalanche, Base, Ethereum, Solana, Stellar.

The Avalanche C-Chain uses the Snowman++ consensus mechanism, which is Avalanche's consensus model for linear blockchains and is implemented through the ProposerVM wrapper. Under this model, validators repeatedly query a small random subset of other validators and converge on a preferred block once the required confidence thresholds are met. Only Primary Network validators are entitled to validate the C-Chain. To participate as a validator on Avalanche mainnet, a node must stake a minimum number of token. Token holders may also participate indirectly by delegating an existing validator. Validator identity and admission to staking require the relevant staking credentials, including BLS proofs of possession under the current staking framework. For block production, Snowman++ uses stake-weighted proposer windows. Through the ProposerVM, block-building opportunities are assigned to proposers in 5-second windows, after which block production may fall back more broadly to validators if necessary. This mechanism is intended to regulate block production while preserving network liveness. Consensus voting itself remains based on repeated sub-sampled polling rather than fixed validator committees. Avalanche documentation describes the finality model as sub-second and treated by the protocol as final and irreversible once accepted, while noting that safety is probabilistic in the formal sense because the probability of conflicting acceptance can be reduced to an arbitrarily low level through the protocol parameters. The protocol does not rely on slashing of staked principal. Instead, validator reward eligibility depends on compliance with protocol conditions, including uptime requirements.

Base does not operate its own consensus mechanism or decentralised validator set comparable to a Layer-1 blockchain. As an optimistic rollup Layer-2 network, Base relies on Ethereum's Proof-of-Stake consensus for the finality and settlement of data and state commitments posted to Ethereum Layer 1. Transaction ordering on Base is performed by a sequencer, currently operated by Coinbase. This sequencing function provides transaction ordering and execution on the Layer-2 network but does not constitute a decentralised consensus mechanism. The validity of Layer-2 state transitions is supported by an optimistic fault-proof mechanism, under which incorrect state commitments may be challenged during the applicable dispute period. Accordingly, Base's security model depends on Ethereum Layer 1 for settlement and finality, while Layer-2 transaction ordering remains dependent on the sequencer.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

Consensus is reached through the Stellar Consensus Protocol (SCP), which is based on federated Byzantine agreement. This mechanism allows fast finality without mining or staking, but it depends on validators choosing other validators which they trust to reach agreement, called a quorum set. As a result, validator diversity and governance choices play a critical role in security, and concentration of influence among large operators may increase systemic risks.

S.5 Incentive Mechanisms and Applicable Fees

EURC is present on the following networks: Avalanche, Base, Ethereum, Solana, Stellar.

The Avalanche C-Chain is secured economically through the native AVAX token. Validator incentives are based primarily on staking rewards, not on redistribution of C-Chain transaction fees. A fixed amount of 360 million AVAX was minted at genesis, while additional AVAX is minted over time as validator rewards, subject to Avalanche's capped token supply framework. Validator rewards are paid at the end of the staking period and are determined by factors such as the validator's stake and compliance with staking conditions. Unlike some proof-of-stake systems, the Avalanche Primary Network does not use slashing of bonded principal as an ordinary penalty mechanism. Instead, the main protocol-level economic consequence for underperformance is the loss of reward eligibility.

Where a validator fails to satisfy the applicable uptime requirement during its staking term, that validator does not receive the corresponding staking reward. Transaction fees apply on the C-Chain for transfers and smart-contract execution. The fee model follows EIP-1559 logic, meaning that transactions are priced through a dynamic base fee mechanism. In contrast to Ethereum's validator tip model, C-Chain transaction fees are burned rather than distributed to validators. This means that C-Chain fees function as a supply-reduction mechanism and are intended in part to offset inflation arising from the minting of validator rewards. In addition to ordinary transaction and smart-contract execution fees, Avalanche documentation also recognises protocol fees in connection with other network operations on other chains of the Primary Network, such as certain import or export operations and staking-related actions. However, for the C-Chain itself, the core applicable fee category is the gas fee for transaction inclusion and contract execution, and those fees are handled through the protocol burn mechanism rather than paid to validators or a treasury.

Base does not have a native protocol token and does not operate a staking, validator reward or token issuance mechanism. Transaction fees on Base are paid in ETH. The economic incentives within the network are primarily related to transaction processing and network security. Transactions are executed on Base and periodically submitted to Ethereum Layer 1 in batches. As the cost of a Layer-1 submission is shared among multiple Layer-2 transactions, the average transaction cost per transaction may be lower than executing the same transactions directly on Ethereum Layer 1. The integrity of withdrawals from Base is supported by a fault-proof mechanism. Withdrawals are subject to a dispute period during which participants may challenge incorrect state commitments. The dispute process incorporates economic incentives intended to encourage honest behaviour and discourage invalid claims.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- **Staking Rewards:** Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.
- **Transaction Fees:** Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.

2. Delegators:

- Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.

3. Economic Security:

- Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
- Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.

2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.

3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.

4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

Stellar does not use block rewards or mining. Instead, validators operate without direct protocol-level rewards. While this design keeps costs low, it may reduce incentives for validator participation compared to staking-based models. The sustainability of validator engagement depends largely on external factors such as institutional involvement and ecosystem adoption.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) avalanche, base, ethereum, solana, stellar is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Moonwell

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Moonwell	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	1645.82389	kWh/a

Qualitative information

S.4 Consensus Mechanism

Moonwell is present on the following networks: Base, Moonbeam, Optimism.

Base does not operate its own consensus mechanism or decentralised validator set comparable to a Layer-1 blockchain. As an optimistic rollup Layer-2 network, Base relies on Ethereum's Proof-of-Stake consensus for the finality and settlement of data and state commitments posted to Ethereum Layer 1. Transaction ordering on Base is performed by a sequencer, currently operated by Coinbase. This sequencing function provides transaction ordering and execution on the Layer-2 network but does not constitute a decentralised consensus mechanism. The validity of Layer-2 state transitions is supported by an optimistic fault-proof mechanism, under which incorrect state commitments may be challenged during the applicable dispute period. Accordingly, Base's security model depends on Ethereum Layer 1 for settlement and finality, while Layer-2 transaction ordering remains dependent on the sequencer.

Moonbeam employs a Delegated Proof of Stake (DPoS) consensus mechanism combined with the Polkadot relay chain for enhanced scalability, finality, and security. It utilizes collators and validators, with finality provided by the GRANDPA finality gadget, ensuring deterministic block finality.

Key Features of Moonbeam's Consensus Mechanism:

1. Delegated Proof of Stake (DPoS):

- Collators and Validators: In Moonbeam's DPoS system, collators maintain the parachain by collecting transactions from users and producing state transition proofs. The collator set is

chosen based on the stake they have, including delegated stake. Delegation: Token holders can delegate their stake to collator candidates. The top collator candidates, including those with delegated stake, join the active set. Collators in the active set are randomly selected to produce blocks.

- Stakes and Block Production: Once a collator is in the active set, their total stake does not impact their chance of being selected to produce blocks.

2. Polkadot Relay Chain Integration:

Moonbeam is built as a parachain on Polkadot, which provides shared security, scalability, and consensus. The relay chain validators ensure that Moonbeam's blocks are validated and secured.

3. GRANDPA Finality:

- Deterministic Finality: Moonbeam relies on Polkadot's GRANDPA finality gadget, which provides fast and deterministic finality for transactions. When a block is finalized, it cannot be reverted except through on-chain governance or forking.
- Parallel Finality: The finality process in Moonbeam occurs simultaneously with block production, unlike Ethereum, which has slower finality. GRANDPA allows for the quick confirmation of blocks, often within a single block on Moonbeam.

4. Block Production:

Blocks are produced by collators who are selected based on their stake and delegated stake, contributing to the network's decentralized nature.

Since Optimism is based on Ethereum, it ultimately inherits its security via the Ethereum blockchain and the proof-of-stake consensus. Within the rollup system, Optimism relies on a "fault proof" procedure. By default, transactions are assumed to be correct ("optimistic"). Only in the event of suspected faults is a fault proof initiated, in which incorrect transactions can be challenged by challengers. This model allows for high efficiency while ensuring correctness.

S.5 Incentive Mechanisms and Applicable Fees

Moonwell is present on the following networks: Base, Moonbeam, Optimism.

Base does not have a native protocol token and does not operate a staking, validator reward or token issuance mechanism. Transaction fees on Base are paid in ETH. The economic incentives within the network are primarily related to transaction processing and network security. Transactions are executed on Base and periodically submitted to Ethereum Layer 1 in batches. As the cost of a Layer-1 submission is shared among multiple Layer-2 transactions, the average transaction cost per transaction may be lower than executing the same transactions directly on Ethereum Layer 1. The integrity of withdrawals from Base is supported by a fault-proof mechanism. Withdrawals are subject to a dispute period during which participants may challenge incorrect state commitments. The dispute process incorporates economic incentives intended to encourage honest behaviour and discourage invalid claims.

Moonbeam incentivizes participation through staking rewards for collators and token holders, alongside transaction fees.

Incentive Mechanism:

1. Collator Rewards:

- Block Rewards: Collators are rewarded with newly minted tokens for successfully producing and validating blocks. These rewards are distributed proportionally to the collators in the active set.
- Transaction Fees: Collators also earn transaction fees from the transactions included in the blocks they produce. These fees are paid by users to prioritize their transactions.

2. Delegation Rewards:

- Delegated Stake: Token holders can delegate their stake to collator candidates. By doing so, they share in the rewards earned by the collators to whom they delegate their tokens. This incentivizes the broader community to participate in governance and block production.
- Voting Power: Token holders who delegate their stake to collators help secure the network and participate in the selection of active collators.

3. Governance Participation:

Voting on Network Proposals: Moonbeam uses its native tokens to allow participants to vote on governance proposals, helping to influence the future direction of the network and incentivizing active involvement in network management.

Applicable Fees:

1. Transaction Fees:

- Fee Calculation: Transaction fees on Moonbeam are determined based on the complexity and size of the transaction. Users pay these fees in the native token (GLMR), which are distributed to the collators.
- Fee Distribution: The fees are split between collators, incentivizing them to process transactions efficiently. The amount of transaction fees can vary depending on network congestion and the size of the transaction.

2. Staking Fees:

Collator Staking: Collators must stake a certain amount of tokens to be eligible for block production. They are incentivized with staking rewards and transaction fees for ensuring the network's security and functionality.

3. Governance Fees:

Voting Fees: Users may need to pay small fees to participate in governance, such as proposing changes or voting on proposals. These fees ensure governance is utilized effectively and prevents spam on the network.

Optimism charges lower transaction fees than Ethereum Layer 1, as transactions are bundled in the rollup and written to the Ethereum main chain in compressed form. Gas fees on Optimism continue to be paid in ETH. The incentive model is based on increased efficiency for users (lower fees, faster confirmation) and on the role of sequencers. Sequencers are central actors who collect, organize, and include transactions in the rollup. Their revenue comes from the gas fees they charge.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) base, moonbeam, optimism is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Cyber

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Cyber	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	1641.14553	kWh/a

Qualitative information

S.4 Consensus Mechanism

Cyber is present on the following networks: Binance Smart Chain, Cyber, Ethereum, Optimism.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Cyber operates as a Layer 2 network built on the Ethereum ecosystem, utilizing the OP Stack from Optimism and integrating EigenDA for data availability. The network employs a decentralized sequencer and verifier architecture.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

Since Optimism is based on Ethereum, it ultimately inherits its security via the Ethereum blockchain and the proof-of-stake consensus. Within the rollup system, Optimism relies on a "fault proof" procedure. By default, transactions are assumed to be correct ("optimistic"). Only in the event of suspected faults is a fault proof initiated, in which incorrect transactions can be challenged by challengers. This model allows for high efficiency while ensuring correctness.

S.5 Incentive Mechanisms and Applicable Fees

Cyber is present on the following networks: Binance Smart Chain, Cyber, Ethereum, Optimism.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

The native token, CYBER, serves multiple functions within the Cyber ecosystem. CYBER holders can participate in governance decisions, influencing protocol parameters and development directions. Staking CYBER tokens enables users to secure the network and earn rewards.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

Optimism charges lower transaction fees than Ethereum Layer 1, as transactions are bundled in the rollup and written to the Ethereum main chain in compressed form. Gas fees on Optimism continue to be paid in ETH. The incentive model is based on increased efficiency for users (lower fees, faster confirmation) and on the role of sequencers. Sequencers are central actors who collect, organize, and include transactions in the rollup. Their revenue comes from the gas fees they charge.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) binance_smart_chain, cyber, ethereum, optimism is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Velodrome

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Velodrome	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	1553.57421	kWh/a

Qualitative information

S.4 Consensus Mechanism

Since Optimism is based on Ethereum, it ultimately inherits its security via the Ethereum blockchain and the proof-of-stake consensus. Within the rollup system, Optimism relies on a “fault proof” procedure. By default, transactions are assumed to be correct (“optimistic”). Only in the event of suspected faults is a fault proof initiated, in which incorrect transactions can be challenged by challengers. This model allows for high efficiency while ensuring correctness.

S.5 Incentive Mechanisms and Applicable Fees

Optimism charges lower transaction fees than Ethereum Layer 1, as transactions are bundled in the rollup and written to the Ethereum main chain in compressed form. Gas fees on Optimism continue to be paid in ETH. The incentive model is based on increased efficiency for users (lower fees, faster confirmation) and on the role of sequencers. Sequencers are central actors who collect, organize, and include transactions in the rollup. Their revenue comes from the gas fees they charge.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) optimism is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of

the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for SushiSwap

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	SushiSwap	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	1517.73709	kWh/a

Qualitative information

S.4 Consensus Mechanism

SushiSwap is present on the following networks: Arbitrum, Ethereum, Fantom, Gnosis Chain, Harmony One, Polygon.

Arbitrum is an optimistic rollup that processes transactions on a Layer 2 network and relies on Ethereum for data availability and settlement. A sequencer orders incoming transactions, executes them and publishes compressed transaction batches to Ethereum. Arbitrum nodes can independently reconstruct and verify the resulting Layer 2 state using the transaction data published on the parent chain. Validators submit assertions representing the state of the network. Under the BoLD dispute protocol, conflicting or incorrect assertions may be challenged and resolved through an interactive fraud-proof process on Ethereum. Once an assertion has been confirmed and the applicable challenge process has been completed, the corresponding Layer 2 state is accepted for settlement purposes.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the

canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

Fantom operates on the Lachesis Protocol, an Asynchronous Byzantine Fault Tolerant (aBFT) consensus mechanism designed for fast, secure, and scalable transactions.

Core Components of Fantom's Consensus:

1. Lachesis Protocol (aBFT):

- Asynchronous and Leaderless: Lachesis allows nodes to reach consensus independently without relying on a central leader, enhancing decentralization and speed.
- DAG Structure: Instead of a linear blockchain, Lachesis uses a Directed Acyclic Graph (DAG) structure, allowing multiple transactions to be processed in parallel across nodes. This structure supports high throughput, making the network suitable for applications requiring rapid transaction processing.

2. Event Blocks and Instant Finality:

- Event Blocks: Transactions are grouped into event blocks, which are validated asynchronously by multiple validators. When enough validators confirm an event block, it becomes part of the Fantom network's history.
- Instant Finality: Transactions on Fantom achieve immediate finality, meaning they are confirmed and cannot be reversed. This property is ideal for applications requiring fast and irreversible transactions.

Gnosis Chain – Consensus Mechanism Gnosis Chain employs a dual-layer structure to balance scalability and security, using Proof of Stake (PoS) for its core consensus and transaction finality.

Core Components:

- Two-Layer Structure Layer 1: Gnosis Beacon Chain The Gnosis Beacon Chain operates on a Proof of Stake (PoS) mechanism, acting as the security and consensus backbone. Validators stake GNO tokens on the Beacon Chain and validate transactions, ensuring network security and finality.
 - Layer 2: Gnosis xDai Chain processes transactions and dApp interactions, providing high-speed, low-cost transactions. Layer 2 transaction data is finalized on the Gnosis Beacon Chain, creating an integrated framework where Layer 1 ensures security and finality, and Layer 2 enhances scalability.
- Validator Role and Staking Validators on the Gnosis Beacon Chain stake GNO tokens and participate in consensus by validating blocks. This setup ensures that validators have an economic interest in maintaining the security and integrity of both the Beacon Chain (Layer 1) and the xDai Chain (Layer 2). Cross-Layer Security Transactions on Layer 2 are ultimately finalized on Layer 1, providing security and finality to all activities on the Gnosis Chain. This architecture allows Gnosis Chain to combine the speed and cost efficiency of Layer 2 with the security guarantees of a PoS-secured Layer 1, making it suitable for both high-frequency applications and secure asset management.

Harmony operates on a consensus mechanism called Effective Proof of Stake (EPoS), designed to balance validator influence and enhance network security while improving transaction scalability.

Core Components:

1. Effective Proof of Stake (EPoS):

- Validator Diversity: EPoS allows a large number of validators to participate and limits the influence of high-stake validators, promoting decentralization and preventing stake centralization.
- Staking Across Shards: Multiple validators compete within each shard, distributing staking power more broadly and enhancing network security.

2. Sharding with PBFT Finality:

- Parallel Transaction Processing: Harmony's four shards enable independent processing of transactions and smart contracts, enhancing scalability and throughput.
- Fast Finality with PBFT: Each shard uses a modified Practical Byzantine Fault Tolerance (PBFT) model, ensuring immediate finality once blocks are validated and achieving high transaction speeds.

Polygon PoS is an EVM-compatible sidechain that operates with a Proof-of-Stake consensus mechanism and periodically submits checkpoints to the Ethereum mainnet. The network maintains its own validator set and processes transactions independently from Ethereum, while using Ethereum smart contracts for staking-related functions and checkpoint verification. Polygon PoS therefore uses Ethereum as a staking and checkpointing layer, but does not rely on Ethereum for full transaction execution or transaction data availability. The Polygon-side architecture consists of two primary node layers. The Bor layer is responsible for transaction execution and block production. The Heimdall layer is responsible for validator coordination, staking-related monitoring, consensus, and checkpoint finalisation. Heimdall is based on Cosmos SDK and CometBFT and aggregates blocks produced by Bor into periodic Merkle-root checkpoints that are submitted to smart contracts on the Ethereum mainnet. Validators participate in the network by staking POL tokens. Token holders may delegate POL tokens to validators, contributing to the validator's effective stake and participating indirectly in network validation. Following the Rio upgrade, Polygon PoS uses a Validator-Elected Block Producer model. Under this model, validators elect the block producer or block producers for a span, rather than relying on the previous stake-weighted selection model for multiple block producers over shorter intervals. Block production and transaction execution are performed on the Bor layer, while Heimdall validators coordinate consensus and checkpoint finalisation. At regular intervals, Heimdall validators aggregate blocks into a Merkle root and submit the resulting checkpoint to Ethereum smart contracts. These checkpoints provide an additional verification layer and support cross-chain verification, including in the context of asset transfers between Polygon PoS and Ethereum. This design enables higher transaction throughput and lower transaction costs than the Ethereum mainnet, while maintaining a technical connection to Ethereum through staking contracts and periodic checkpointing. Polygon PoS should therefore be understood as an independent sidechain or commit-chain architecture, rather than a rollup that inherits full execution and data availability security from Ethereum.

S.5 Incentive Mechanisms and Applicable Fees

SushiSwap is present on the following networks: Arbitrum, Ethereum, Fantom, Gnosis Chain, Harmony One, Polygon.

Transactions on Arbitrum are subject to fees paid in ETH. The total fee generally consists of a Layer 2 execution component, which covers the computational resources required to process the transaction, and a parent-chain data component, which reflects the cost of publishing compressed transaction data to Ethereum. The amount payable therefore depends on the computational complexity of the transaction, the volume and compressibility of its data and the prevailing cost of data publication on Ethereum. Participants that submit or challenge state assertions under the dispute protocol must provide economic bonds. These bonds are intended to discourage incorrect

assertions and compensate successful participants in the dispute process. Withdrawals through the canonical bridge become executable after the relevant Layer 2 state has been confirmed and the applicable challenge period has elapsed.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

Fantom's incentive model promotes network security through staking rewards, transaction fees, and delegation options, encouraging broad participation.

Incentive Mechanisms:

1. Staking Rewards for Validators:

- Earning Rewards in FTM: Validators who participate in the consensus process earn rewards in FTM tokens, proportional to the amount they have staked. This incentivizes validators to actively secure the network.
- Dynamic Staking Rate: Fantom's staking reward rate is dynamic, adjusting based on total FTM staked across the network. As more FTM is staked, individual rewards may decrease, maintaining a balanced reward structure that supports long-term network security.

2. Delegation for Token Holders:

Delegated Staking: Users who do not operate validator nodes can delegate their FTM tokens to validators. In return, they share in the staking rewards, encouraging wider participation in securing the network.

Applicable Fees:

- Transaction Fees in FTM: Users pay transaction fees in FTM tokens. The network's high throughput and DAG structure keep fees low, making Fantom ideal for decentralized applications (dApps) requiring frequent transactions.
- Efficient Fee Model: The low fees and scalability of the network make it cost-effective for users, fostering a favorable environment for high-volume applications.

The Gnosis Chain's incentive and fee models encourage both validator participation and network accessibility, using a dual-token system to maintain low transaction costs and effective staking rewards.

Incentive Mechanisms:

- Staking Rewards for Validators GNO Rewards: Validators earn staking rewards in GNO tokens for their participation in consensus and securing the network.

- Delegation Model: GNO holders who do not operate validator nodes can delegate their GNO tokens to validators, allowing them to share in staking rewards and encouraging broader participation in network security.
- Dual-Token Model GNO: Used for staking, governance, and validator rewards, GNO aligns long-term network security incentives with token holders' economic interests.
- xDai: Serves as the primary transaction currency, providing stable and low-cost transactions. The use of a stable token (xDai) for fees minimizes volatility and offers predictable costs for users and developers.

Applicable Fees:

Transaction Fees in xDai Users pay transaction fees in xDai, the stable fee token, making costs affordable and predictable. This model is especially suited for high-frequency applications and dApps where low transaction fees are essential. xDai transaction fees are redistributed to validators as part of their compensation, aligning their rewards with network activity. Delegated Staking Rewards Through delegated staking, GNO holders can earn a share of staking rewards by delegating their tokens to active validators, promoting user participation in network security without requiring direct involvement in consensus operations.

Harmony incentivizes validators and delegators to participate in network security and performance through staking rewards, transaction fees, and a unique reward structure promoting decentralization.

Incentive Mechanisms:

1. Staking Rewards for Validators and Delegators:

ONE Token Rewards: Validators earn ONE tokens for validating transactions and securing the network, with a share of these rewards distributed to delegators based on the amount staked.

2. Decentralization Penalty for High Stake:

Reward Adjustment for Large Stakeholders: Validators with an excessive delegated stake experience reduced rewards, preventing centralization and encouraging a fair distribution of staking power.

Applicable Fees:

1. Transaction Fees:

Harmony charges minimal transaction fees in ONE tokens, benefiting high-frequency applications and providing validators with additional rewards.

Polygon PoS uses economic incentives to support validator participation, transaction processing, and network operation. Validators stake POL tokens and participate in block production, validation, voting, and checkpoint finalisation. Validators may receive rewards connected to their participation in the network, including rewards linked to validation activities and transaction-fee allocation, depending on the applicable protocol rules. Token holders who do not operate validator infrastructure may delegate POL tokens to validators. Delegators may receive a share of rewards attributable to the validator to whom they delegate, subject to the validator's commission and applicable protocol rules. Delegation increases the validator's effective stake and may affect its role in the validator set and related network processes. Following the Rio upgrade, Polygon PoS introduced a Validator-Elected Block Producer model, under which validators elect the block producer or block producers for a span. Publicly described protocol changes associated with this model also provide for redistribution of fees, including maximum extractable value-related fees where applicable, to non-producing validators under the relevant protocol design. This changes the incentive structure from the previous model in which block production selection was more directly described by

reference to stake-weighted producer selection. Polygon PoS includes protocol specifications for validator penalties, including slashing-related concepts. Transactions on Polygon PoS require payment of network fees in POL. Fees apply to ordinary token transfers, smart contract deployment, and smart contract interaction. The amount of fees may vary depending on network demand, transaction complexity, and computational resources required. Because Polygon PoS processes transactions independently from Ethereum, transaction fees are generally designed to be lower than equivalent activity on the Ethereum mainnet, although actual fees may change according to network conditions and protocol parameters.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) arbitrum, ethereum, fantom, gnosis_chain, harmony_one, polygon is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for DuckChain Token

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	DuckChain Token	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	1419.12000	kWh/a

Qualitative information

S.4 Consensus Mechanism

The Open Network uses a Proof-of-Stake (PoS) consensus mechanism based on the Catchain protocol. Validators stake GRAM to participate in block production, transaction validation, and network security. Catchain provides Byzantine Fault Tolerant (BFT) consensus across the network's sharded architecture, enabling multiple shardchains to process transactions in parallel while maintaining a consistent global state. Validators are selected and rotated periodically, and once consensus is reached, blocks achieve deterministic finality.

S.5 Incentive Mechanisms and Applicable Fees

The Open Network incentivizes network participation through staking rewards and transaction fees. Validators receive rewards for producing blocks, validating transactions, and maintaining network security, with rewards distributed according to their participation and stake. Transaction fees are paid in GRAM and vary depending on the computational resources required by a transaction. The protocol also applies penalties to validators that fail to meet their obligations or act maliciously, encouraging reliable network operation and honest participation.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) toncoin is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Useless Coin

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Useless Coin	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	1370.70739	kWh/a

Qualitative information

S.4 Consensus Mechanism

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):
 - Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
 - Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.
2. Proof of Stake (PoS):
 - Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
 - Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.

- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.
- 2. Delegators:
 - Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.
- 3. Economic Security:
 - Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
 - Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.
2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.
3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.
4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Lido DAO Token

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Lido DAO Token	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	1288.16567	kWh/a

Qualitative information

S.4 Consensus Mechanism

Lido DAO Token is present on the following networks: Arbitrum, Binance Smart Chain, Ethereum, Solana, Terra Classic.

Arbitrum is an optimistic rollup that processes transactions on a Layer 2 network and relies on Ethereum for data availability and settlement. A sequencer orders incoming transactions, executes them and publishes compressed transaction batches to Ethereum. Arbitrum nodes can independently reconstruct and verify the resulting Layer 2 state using the transaction data published on the parent chain. Validators submit assertions representing the state of the network. Under the BoLD dispute protocol, conflicting or incorrect assertions may be challenged and resolved through an interactive fraud-proof process on Ethereum. Once an assertion has been confirmed and the applicable challenge process has been completed, the corresponding Layer 2 state is accepted for settlement purposes.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 "Cabinet" validators and 24 "Candidate" validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by

validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence

to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

Terra blockchain operates on a Delegated Proof of Stake (DPoS) consensus mechanism, which ensures fast, scalable, and secure transaction processing.

Core Components:

- Delegated Proof of Stake (DPoS):

- Validators: A limited set of validators are responsible for validating transactions, proposing blocks, and securing the network. Validators are selected based on the amount of LUNA tokens staked, either directly or delegated by token holders.
- Delegation: LUNA holders can delegate their tokens to validators, allowing them to participate in staking rewards without running their own validator nodes.
- Rotational Leadership: Validators are selected in a round-robin manner to propose new blocks, ensuring fairness and efficiency in block production.

- Tendermint BFT (Byzantine Fault Tolerance):

- Terra integrates the Tendermint Core consensus engine, providing fast block finality and resilience against up to one-third of malicious or faulty validators.
- Finality: Transactions are confirmed once a block is added, reducing the risk of chain reorganizations and ensuring immediate finality.
- Governance Integration: LUNA token holders participate in governance by voting on proposals related to protocol upgrades, parameter changes, and community decisions, aligning stakeholder incentives with network health.

S.5 Incentive Mechanisms and Applicable Fees

Lido DAO Token is present on the following networks: Arbitrum, Binance Smart Chain, Ethereum, Solana, Terra Classic.

Transactions on Arbitrum are subject to fees paid in ETH. The total fee generally consists of a Layer 2 execution component, which covers the computational resources required to process the transaction, and a parent-chain data component, which reflects the cost of publishing compressed transaction data to Ethereum. The amount payable therefore depends on the computational complexity of the transaction, the volume and compressibility of its data and the prevailing cost of data publication on Ethereum. Participants that submit or challenge state assertions under the dispute protocol must provide economic bonds. These bonds are intended to discourage incorrect assertions and compensate successful participants in the dispute process. Withdrawals through the canonical bridge become executable after the relevant Layer 2 state has been confirmed and the applicable challenge period has elapsed.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and

an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.
- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.

2. Delegators:

- Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.

3. Economic Security:

- Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
- Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties. Fees Applicable on the Solana Blockchain

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.

2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.

3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.

4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

The Terra blockchain's incentive structure is designed to reward network participants, ensure security, and sustain ecosystem growth, while its fee model aligns with its focus on scalability and cost-efficiency.

Incentive Mechanisms:

- Validators: Validators earn staking rewards for their role in securing the network and validating transactions. Rewards are distributed in LUNA tokens, derived from transaction fees and seigniorage revenue.
- Delegators: LUNA holders who delegate their tokens to validators receive a share of staking rewards, proportional to the amount delegated, incentivizing broad participation.
- Seigniorage Rewards: Validators and delegators benefit from seigniorage revenue, generated when new stablecoins (e.g., TerraUSD) are minted. A portion of this revenue is allocated to reward LUNA stakers.
- Stability Incentives: LUNA token holders are incentivized to stake and participate in governance to maintain the stability of Terra's ecosystem and its algorithmic stablecoins.
- Governance Participation Rewards: Validators and delegators have governance voting rights, enabling them to shape the network's future. Participation in governance aligns incentives with long-term ecosystem health.

Applicable Fees:

- Transaction Fees: Users pay fees in LUNA or stablecoins for transactions such as fund transfers, smart contract execution, and staking. These fees are distributed among validators and delegators, providing additional incentives for network security and functionality.
- Dynamic Fee Model: Transaction fees are dynamically adjusted based on network congestion and transaction size. This ensures efficient resource allocation while keeping fees affordable for users.
- Seigniorage Fee: A portion of revenue from stablecoin minting is directed to the treasury and distributed to stakers, reinforcing network participation and development.
- Burning Mechanism: A portion of fees and seigniorage revenue may be burned, reducing LUNA supply over time and contributing to its deflationary tokenomics.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) arbitrum, binance_smart_chain, ethereum, solana, terra_classic is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for COTI Token

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	COTI Token	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	1251.28530	kWh/a

Qualitative information

S.4 Consensus Mechanism

COTI Token is present on the following networks: Binance Smart Chain, Ethereum.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon

Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

COTI Token is present on the following networks: Binance Smart Chain, Ethereum.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to

slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) binance_smart_chain, ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



ether.fi governance token

ETHFI | RJTJR45MC

Quantitative information

Quantitative sustainability indicators for ether.fi governance token

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	ether.fi governance token	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	1244.58492	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



ApeCoin
APE | 7WKVRWPNR

Quantitative information

Quantitative sustainability indicators for ApeCoin

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	ApeCoin	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	1239.93762	kWh/a

Qualitative information

S.4 Consensus Mechanism

ApeCoin is present on the following networks: Binance Smart Chain, Ethereum, Polygon.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon

Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

Polygon PoS is an EVM-compatible sidechain that operates with a Proof-of-Stake consensus mechanism and periodically submits checkpoints to the Ethereum mainnet. The network maintains its own validator set and processes transactions independently from Ethereum, while using Ethereum smart contracts for staking-related functions and checkpoint verification. Polygon PoS therefore uses Ethereum as a staking and checkpointing layer, but does not rely on Ethereum for full transaction execution or transaction data availability. The Polygon-side architecture consists of two primary node layers. The Bor layer is responsible for transaction execution and block production. The Heimdall layer is responsible for validator coordination, staking-related monitoring, consensus, and checkpoint finalisation. Heimdall is based on Cosmos SDK and CometBFT and aggregates blocks produced by Bor into periodic Merkle-root checkpoints that are submitted to smart contracts on the Ethereum mainnet. Validators participate in the network by staking POL tokens. Token holders may delegate POL tokens to validators, contributing to the validator's effective stake and participating indirectly in network validation. Following the Rio upgrade, Polygon PoS uses a Validator-Elected Block Producer model. Under this model, validators elect the block producer or block producers for a span, rather than relying on the previous stake-weighted selection model for multiple block producers over shorter intervals. Block production and transaction execution are performed on the Bor layer, while Heimdall validators coordinate consensus and checkpoint finalisation. At regular intervals, Heimdall validators aggregate blocks into a Merkle root and submit the resulting checkpoint to Ethereum smart contracts. These checkpoints provide an additional verification layer and support cross-chain verification, including in the context of asset transfers between Polygon PoS and Ethereum. This design enables higher transaction throughput and lower transaction costs than the Ethereum mainnet, while maintaining a technical connection to Ethereum through staking contracts and periodic checkpointing. Polygon PoS should therefore be understood as an independent sidechain or commit-chain architecture, rather than a rollup that inherits full execution and data availability security from Ethereum.

S.5 Incentive Mechanisms and Applicable Fees

ApeCoin is present on the following networks: Binance Smart Chain, Ethereum, Polygon.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are

updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

Polygon PoS uses economic incentives to support validator participation, transaction processing, and network operation. Validators stake POL tokens and participate in block production, validation, voting, and checkpoint finalisation. Validators may receive rewards connected to their participation in the network, including rewards linked to validation activities and transaction-fee allocation, depending on the applicable protocol rules. Token holders who do not operate validator infrastructure may delegate POL tokens to validators. Delegators may receive a share of rewards attributable to the validator to whom they delegate, subject to the validator's commission and applicable protocol rules. Delegation increases the validator's effective stake and may affect its role in the validator set and related network processes. Following the Rio upgrade, Polygon PoS introduced a Validator-Elected Block Producer model, under which validators elect the block producer or block producers for a span. Publicly described protocol changes associated with this model also provide for redistribution of fees, including maximum extractable value-related fees where applicable, to non-producing validators under the relevant protocol design. This changes the incentive structure from the previous model in which block production selection was more directly described by reference to stake-weighted producer selection. Polygon PoS includes protocol specifications for validator penalties, including slashing-related concepts. Transactions on Polygon PoS require payment of network fees in POL. Fees apply to ordinary token transfers, smart contract deployment, and smart contract interaction. The amount of fees may vary depending on network demand, transaction complexity, and computational resources required. Because Polygon PoS processes transactions independently from Ethereum, transaction fees are generally designed to be lower than equivalent activity on the Ethereum mainnet, although actual fees may change according to network conditions and protocol parameters.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) binance_smart_chain, ethereum, polygon is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Zama

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Zama	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	1125.24206	kWh/a

Qualitative information

S.4 Consensus Mechanism

Zama is present on the following networks: Binance Smart Chain, Ethereum, Solana.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon

Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Zama is present on the following networks: Binance Smart Chain, Ethereum, Solana.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.
- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.

2. Delegators:

- Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.

3. Economic Security:

- Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
- Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties. Fees Applicable on the Solana Blockchain

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.

2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.

3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.

4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) binance_smart_chain, ethereum, solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Non Playable Coin

NPC | /

Quantitative information

Quantitative sustainability indicators for Non Playable Coin

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Non Playable Coin	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	1052.02300	kWh/a

Qualitative information

S.4 Consensus Mechanism

Non Playable Coin is present on the following networks: Base, Binance Smart Chain, Ethereum, Solana.

Base does not operate its own consensus mechanism or decentralised validator set comparable to a Layer-1 blockchain. As an optimistic rollup Layer-2 network, Base relies on Ethereum's Proof-of-Stake consensus for the finality and settlement of data and state commitments posted to Ethereum Layer 1. Transaction ordering on Base is performed by a sequencer, currently operated by Coinbase. This sequencing function provides transaction ordering and execution on the Layer-2 network but does not constitute a decentralised consensus mechanism. The validity of Layer-2 state transitions is supported by an optimistic fault-proof mechanism, under which incorrect state commitments may be challenged during the applicable dispute period. Accordingly, Base's security model depends on Ethereum Layer 1 for settlement and finality, while Layer-2 transaction ordering remains dependent on the sequencer.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 "Cabinet" validators and 24 "Candidate" validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may

delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Non Playable Coin is present on the following networks: Base, Binance Smart Chain, Ethereum, Solana.

Base does not have a native protocol token and does not operate a staking, validator reward or token issuance mechanism. Transaction fees on Base are paid in ETH. The economic incentives within the network are primarily related to transaction processing and network security. Transactions are executed on Base and periodically submitted to Ethereum Layer 1 in batches. As the cost of a Layer-1 submission is shared among multiple Layer-2 transactions, the average transaction cost per transaction may be lower than executing the same transactions directly on Ethereum Layer 1. The integrity of withdrawals from Base is supported by a fault-proof mechanism. Withdrawals are subject to a dispute period during which participants may challenge incorrect state commitments. The dispute process incorporates economic incentives intended to encourage honest behaviour and discourage invalid claims.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators.

This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.
- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.

2. Delegators:

- Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.

3. Economic Security:

- Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
- Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.

2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.

3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.

4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) base, binance_smart_chain, ethereum, solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Lucky Kat

KOBAN | /

Quantitative information

Quantitative sustainability indicators for Lucky Kat

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Lucky Kat	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	986.81400	kWh/a

Qualitative information

S.4 Consensus Mechanism

The Sui blockchain utilizes a Byzantine Fault Tolerant (BFT) consensus mechanism optimized for high throughput and low latency.

Core Components:

1. Mysten Consensus Protocol:

- The Sui consensus is based on Mysten Labs' Byzantine Fault Tolerance (BFT) protocol, which builds on principles of Practical Byzantine Fault Tolerance (pBFT) but introduces key optimizations for performance.
- Leaderless Design: Unlike traditional BFT models, Sui does not rely on a single leader to propose blocks. Validators can propose blocks simultaneously, increasing efficiency and reducing the risks associated with leader failure or attacks.
- Parallel Processing: Transactions can be processed in parallel, maximizing network throughput by utilizing multiple cores and threads. This allows for faster confirmation of transactions and high scalability.

2. Transaction Validation:

Validators are responsible for receiving transaction requests from clients and processing them. Each transaction includes digital signatures and must meet the network's rules to be considered valid. Validators can propose transactions simultaneously, unlike many other networks that require a sequential, leader-driven process.

3. Optimistic Execution:

Optimistic Consensus: Sui allows validators to process certain non-contentious, independent transactions without waiting for full consensus. This is known as optimistic execution and helps reduce transaction latency for many use cases, allowing for fast finality in most cases.

4. Finality and Latency:

The system only requires three rounds of communication between validators to finalize a transaction. This results in low-latency consensus and rapid transaction confirmation times, achieving scalability while maintaining security.

5. Fault Tolerance:

The system can tolerate up to one-third of validators being faulty or malicious without compromising the integrity of the consensus process.

S.5 Incentive Mechanisms and Applicable Fees

Security and Economic Incentives:

1. Validators:

Validators stake SUI tokens to participate in the consensus process. They earn rewards for validating transactions and securing the network.

2. Slashing:

Validators can be penalized (slashed) for malicious behavior, such as double-signing or failing to properly validate transactions. This helps maintain network security and incentivizes honest behavior.

3. Delegation:

Token holders can delegate their SUI tokens to trusted validators. In return, they share in the rewards earned by validators. This encourages widespread participation in securing the network.

Fees on the SUI Blockchain:

1. Transaction Fees:

Users pay transaction fees to validators for processing and confirming transactions. These fees are calculated based on the computational resources required to process the transaction. Fees are paid in SUI tokens, which is the native cryptocurrency of the Sui blockchain.

2. Dynamic Fee Model:

The transaction fees on Sui are dynamic, meaning they adjust based on network demand and the complexity of the transactions being processed.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) sui is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for JUST

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	JUST	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	976.98001	kWh/a

Qualitative information

S.4 Consensus Mechanism

The Tron blockchain operates on a Delegated Proof of Stake (DPoS) consensus mechanism, designed to improve scalability, transaction speed, and energy efficiency.

Core Components:

1. Delegated Proof of Stake (DPoS): Tron uses DPoS, where token holders vote for a group of delegates known as Super Representatives (SRs) who are responsible for validating transactions and producing new blocks on the network. Token holders can vote for SRs based on their stake in the Tron network, and the top 27 SRs (or more, depending on the protocol version) are selected to participate in the block production process. SRs take turns producing blocks, which are added to the blockchain. This is done on a rotational basis to ensure decentralization and prevent control by a small group of validators.
2. Block Production: The Super Representatives generate new blocks and confirm transactions. The Tron blockchain achieves block finality quickly, with block production occurring every 3 seconds, making it highly efficient and capable of processing thousands of transactions per second.
3. Voting and Governance: Tron's DPoS system also allows token holders to vote on important network decisions, such as protocol upgrades and changes to the system's parameters. Voting power is proportional to the amount of TRX (Tron's native token) that a user holds and chooses to stake. This provides a governance system where the community can actively participate in decision-making.

4. Super Representatives: The Super Representatives play a crucial role in maintaining the security and stability of the Tron blockchain. They are responsible for validating transactions, proposing new blocks, and ensuring the overall functionality of the network. Super Representatives are incentivized with block rewards (newly minted TRX tokens) and transaction fees for their work.

S.5 Incentive Mechanisms and Applicable Fees

The Tron blockchain uses a Delegated Proof of Stake (DPoS) consensus mechanism to secure its network and incentivize participation.

Incentive Mechanism:

1. Super Representatives (SRs) Rewards:
 - Block Rewards: Super Representatives (SRs), who are elected by TRX holders, are rewarded for producing blocks. Each block they produce comes with a block reward in the form of TRX tokens.
 - Transaction Fees: In addition to block rewards, SRs receive transaction fees for validating transactions and including them in blocks. This ensures they are incentivized to process transactions efficiently.
2. Voting and Delegation:
 - TRX Staking: TRX holders can stake their tokens and vote for Super Representatives (SRs). When TRX holders vote, they delegate their voting power to SRs, which allows SRs to earn rewards in the form of newly minted TRX tokens.
 - Delegator Rewards: Token holders who delegate their votes to an SR can also receive a share of the rewards. This means delegators share in the block rewards and transaction fees that the SR earns.
 - Incentivizing Participation: The more tokens a user stakes, the more voting power they have, which encourages participation in governance and network security.
3. Incentive for SRs:

SRs are also incentivized to maintain the health and performance of the network. Their reputation and continued election depend on their ability to produce blocks consistently and efficiently process transactions.

Applicable Fees:

1. Transaction Fees:
 - Fee Calculation: Users must pay transaction fees to have their transactions processed. The transaction fee varies based on the complexity of the transaction and the network's current demand. This is paid in TRX tokens.
 - Fee Distribution: Transaction fees are distributed to Super Representatives (SRs), giving them an ongoing income to maintain and support the network.
2. Storage Fees:

Tron charges storage fees for data storage on the blockchain. This includes storing smart contracts, tokens, and other data on the network. Users are required to pay these fees in TRX tokens to store data.
3. Energy and Bandwidth:

Energy: Tron uses a resource model that allows users to access network resources like bandwidth and energy through staking. Users who stake their TRX tokens receive energy

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) tron is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for AZTEC

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	AZTEC	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	971.81570	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.


ADI

ADI | LX7S761QL

Quantitative information

Quantitative sustainability indicators for ADI

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	ADI	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	967.98686	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Anoma

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Anoma	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	915.51287	kWh/a

Qualitative information

S.4 Consensus Mechanism

Anoma is present on the following networks: Binance Smart Chain, Ethereum.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon

Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Anoma is present on the following networks: Binance Smart Chain, Ethereum.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to

slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) binance_smart_chain, ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Onyxcoin

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Onyxcoin	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	891.49902	kWh/a

Qualitative information

S.4 Consensus Mechanism

Onyxcoin is present on the following networks: Base, Binance Smart Chain, Ethereum.

Base does not operate its own consensus mechanism or decentralised validator set comparable to a Layer-1 blockchain. As an optimistic rollup Layer-2 network, Base relies on Ethereum's Proof-of-Stake consensus for the finality and settlement of data and state commitments posted to Ethereum Layer 1. Transaction ordering on Base is performed by a sequencer, currently operated by Coinbase. This sequencing function provides transaction ordering and execution on the Layer-2 network but does not constitute a decentralised consensus mechanism. The validity of Layer-2 state transitions is supported by an optimistic fault-proof mechanism, under which incorrect state commitments may be challenged during the applicable dispute period. Accordingly, Base's security model depends on Ethereum Layer 1 for settlement and finality, while Layer-2 transaction ordering remains dependent on the sequencer.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 "Cabinet" validators and 24 "Candidate" validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by

validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Onyxcoin is present on the following networks: Base, Binance Smart Chain, Ethereum.

Base does not have a native protocol token and does not operate a staking, validator reward or token issuance mechanism. Transaction fees on Base are paid in ETH. The economic incentives within the network are primarily related to transaction processing and network security. Transactions are executed on Base and periodically submitted to Ethereum Layer 1 in batches. As the cost of a Layer-1 submission is shared among multiple Layer-2 transactions, the average transaction cost per transaction may be lower than executing the same transactions directly on Ethereum Layer 1. The integrity of withdrawals from Base is supported by a fault-proof mechanism. Withdrawals are subject to a dispute period during which participants may challenge incorrect state commitments. The dispute process incorporates economic incentives intended to encourage honest behaviour and discourage invalid claims.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The

staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) base, binance_smart_chain, ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Centrifuge

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Centrifuge	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	885.24142	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Worldcoin

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Worldcoin	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	882.17019	kWh/a

Qualitative information

S.4 Consensus Mechanism

Worldcoin is present on the following networks: Ethereum, Optimism.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

Since Optimism is based on Ethereum, it ultimately inherits its security via the Ethereum blockchain and the proof-of-stake consensus. Within the rollup system, Optimism relies on a "fault proof" procedure. By default, transactions are assumed to be correct ("optimistic"). Only in the event of suspected faults is a fault proof initiated, in which incorrect transactions can be challenged by challengers. This model allows for high efficiency while ensuring correctness.

S.5 Incentive Mechanisms and Applicable Fees

Worldcoin is present on the following networks: Ethereum, Optimism.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

Optimism charges lower transaction fees than Ethereum Layer 1, as transactions are bundled in the rollup and written to the Ethereum main chain in compressed form. Gas fees on Optimism continue to be paid in ETH. The incentive model is based on increased efficiency for users (lower fees, faster confirmation) and on the role of sequencers. Sequencers are central actors who collect, organize, and include transactions in the rollup. Their revenue comes from the gas fees they charge.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum, optimism is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Jito

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Jito	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	871.31587	kWh/a

Qualitative information

S.4 Consensus Mechanism

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):
 - Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
 - Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.
2. Proof of Stake (PoS):
 - Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
 - Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.

- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.
- 2. Delegators:
 - Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.
- 3. Economic Security:
 - Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
 - Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.
2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.
3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.
4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Mog Coin

MOG | C4044KDRD

Quantitative information

Quantitative sustainability indicators for Mog Coin

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Mog Coin	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	840.64256	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Seeker

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Seeker	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	827.24481	kWh/a

Qualitative information

S.4 Consensus Mechanism

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):
 - Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
 - Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.
2. Proof of Stake (PoS):
 - Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
 - Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.

- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.
- 2. Delegators:
 - Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.
- 3. Economic Security:
 - Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
 - Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.
2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.
3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.
4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Seeker

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Seeker	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	827.24481	kWh/a

Qualitative information

S.4 Consensus Mechanism

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.

- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.
- 2. Delegators:
 - Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.
- 3. Economic Security:
 - Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
 - Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.
2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.
3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.
4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Morpho Token

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Morpho Token	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	823.75249	kWh/a

Qualitative information

S.4 Consensus Mechanism

Morpho Token is present on the following networks: Base, Ethereum.

Base does not operate its own consensus mechanism or decentralised validator set comparable to a Layer-1 blockchain. As an optimistic rollup Layer-2 network, Base relies on Ethereum's Proof-of-Stake consensus for the finality and settlement of data and state commitments posted to Ethereum Layer 1. Transaction ordering on Base is performed by a sequencer, currently operated by Coinbase. This sequencing function provides transaction ordering and execution on the Layer-2 network but does not constitute a decentralised consensus mechanism. The validity of Layer-2 state transitions is supported by an optimistic fault-proof mechanism, under which incorrect state commitments may be challenged during the applicable dispute period. Accordingly, Base's security model depends on Ethereum Layer 1 for settlement and finality, while Layer-2 transaction ordering remains dependent on the sequencer.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the

canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Morpho Token is present on the following networks: Base, Ethereum.

Base does not have a native protocol token and does not operate a staking, validator reward or token issuance mechanism. Transaction fees on Base are paid in ETH. The economic incentives within the network are primarily related to transaction processing and network security. Transactions are executed on Base and periodically submitted to Ethereum Layer 1 in batches. As the cost of a Layer-1 submission is shared among multiple Layer-2 transactions, the average transaction cost per transaction may be lower than executing the same transactions directly on Ethereum Layer 1. The integrity of withdrawals from Base is supported by a fault-proof mechanism. Withdrawals are subject to a dispute period during which participants may challenge incorrect state commitments. The dispute process incorporates economic incentives intended to encourage honest behaviour and discourage invalid claims.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) base, ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Quant

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Quant	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	813.34436	kWh/a

Qualitative information

S.4 Consensus Mechanism

Quant is present on the following networks: Energi, Ethereum.

Energi operates on a Proof of Stake (PoS) consensus mechanism supported by a masternode system. Validators, or "stakers," secure the network by locking up NRG tokens to validate transactions and maintain network integrity.

Core Components:

1. Proof of Stake (PoS):
Validators lock up NRG tokens and earn rewards for confirming transactions based on their staked amount, ensuring active participation in network security.
2. Masternode System:
 - Collateral Requirement: To operate a masternode, users must lock up 1,000 NRG as collateral. Masternodes contribute to transaction validation, security, and governance, playing a central role in network functionality.
 - Governance Participation: Masternodes vote on network proposals, protocol changes, and community initiatives, enabling decentralized decision-making.
3. Self-Funding Treasury:
A portion of block rewards funds the treasury, which supports development, marketing, and community projects, ensuring Energi's growth and development over time

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Quant is present on the following networks: Energi, Ethereum.

Energi incentivizes both stakers and masternodes with block rewards, supporting network security and governance. Transaction fees contribute to network sustainability.

Incentive Mechanisms:

Staking and Masternode Rewards:

- Staker Rewards: Validators earn a portion of block rewards for transaction validation.
- Masternode Rewards: Masternodes receive rewards for their roles in governance and network support, ensuring active engagement in network development.

Applicable Fees:

1. Transaction Fees:

Low Cost: Users pay transaction fees in NRG, which are generally low and provide additional rewards for validators and masternodes, supporting network operations.

2. Balanced Reward Structure:

Inflation Control: Energi's rewards structure is designed to maintain inflation balance with sustainable rewards, incentivizing long-term network participation.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) energy, ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Magic Internet Money

MIM | /

Quantitative information

Quantitative sustainability indicators for Magic Internet Money

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Magic Internet Money	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	803.22547	kWh/a

Qualitative information

S.4 Consensus Mechanism

Magic Internet Money is present on the following networks: Arbitrum, Avalanche, Binance Smart Chain, Ethereum, Fantom, Solana.

Arbitrum is an optimistic rollup that processes transactions on a Layer 2 network and relies on Ethereum for data availability and settlement. A sequencer orders incoming transactions, executes them and publishes compressed transaction batches to Ethereum. Arbitrum nodes can independently reconstruct and verify the resulting Layer 2 state using the transaction data published on the parent chain. Validators submit assertions representing the state of the network. Under the BoLD dispute protocol, conflicting or incorrect assertions may be challenged and resolved through an interactive fraud-proof process on Ethereum. Once an assertion has been confirmed and the applicable challenge process has been completed, the corresponding Layer 2 state is accepted for settlement purposes.

The Avalanche C-Chain uses the Snowman++ consensus mechanism, which is Avalanche's consensus model for linear blockchains and is implemented through the ProposerVM wrapper. Under this model, validators repeatedly query a small random subset of other validators and converge on a preferred block once the required confidence thresholds are met. Only Primary Network validators are entitled to validate the C-Chain. To participate as a validator on Avalanche mainnet, a node must stake a minimum number of token. Token holders may also participate indirectly by delegating an existing validator. Validator identity and admission to staking require the relevant staking credentials, including BLS proofs of possession under the current staking framework. For block production,

Snowman++ uses stake-weighted proposer windows. Through the ProposerVM, block-building opportunities are assigned to proposers in 5-second windows, after which block production may fall back more broadly to validators if necessary. This mechanism is intended to regulate block production while preserving network liveness. Consensus voting itself remains based on repeated sub-sampled polling rather than fixed validator committees. Avalanche documentation describes the finality model as sub-second and treated by the protocol as final and irreversible once accepted, while noting that safety is probabilistic in the formal sense because the probability of conflicting acceptance can be reduced to an arbitrarily low level through the protocol parameters. The protocol does not rely on slashing of staked principal. Instead, validator reward eligibility depends on compliance with protocol conditions, including uptime requirements.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum’s consensus mechanism and Layer 2 functionality.

Fantom operates on the Lachesis Protocol, an Asynchronous Byzantine Fault Tolerant (aBFT) consensus mechanism designed for fast, secure, and scalable transactions.

Core Components of Fantom’s Consensus:

1. Lachesis Protocol (aBFT):

- Asynchronous and Leaderless: Lachesis allows nodes to reach consensus independently without relying on a central leader, enhancing decentralization and speed.
- DAG Structure: Instead of a linear blockchain, Lachesis uses a Directed Acyclic Graph (DAG) structure, allowing multiple transactions to be processed in parallel across nodes. This structure supports high throughput, making the network suitable for applications requiring rapid transaction processing.

2. Event Blocks and Instant Finality:

- Event Blocks: Transactions are grouped into event blocks, which are validated asynchronously by multiple validators. When enough validators confirm an event block, it becomes part of the Fantom network's history.
- Instant Finality: Transactions on Fantom achieve immediate finality, meaning they are confirmed and cannot be reversed. This property is ideal for applications requiring fast and irreversible transactions.

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.

- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.
2. Security:
- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
 - Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.
3. Economic Penalties:
- Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Magic Internet Money is present on the following networks: Arbitrum, Avalanche, Binance Smart Chain, Ethereum, Fantom, Solana.

Transactions on Arbitrum are subject to fees paid in ETH. The total fee generally consists of a Layer 2 execution component, which covers the computational resources required to process the transaction, and a parent-chain data component, which reflects the cost of publishing compressed transaction data to Ethereum. The amount payable therefore depends on the computational complexity of the transaction, the volume and compressibility of its data and the prevailing cost of data publication on Ethereum. Participants that submit or challenge state assertions under the dispute protocol must provide economic bonds. These bonds are intended to discourage incorrect assertions and compensate successful participants in the dispute process. Withdrawals through the canonical bridge become executable after the relevant Layer 2 state has been confirmed and the applicable challenge period has elapsed.

The Avalanche C-Chain is secured economically through the native AVAX token. Validator incentives are based primarily on staking rewards, not on redistribution of C-Chain transaction fees. A fixed amount of 360 million AVAX was minted at genesis, while additional AVAX is minted over time as validator rewards, subject to Avalanche's capped token supply framework. Validator rewards are paid at the end of the staking period and are determined by factors such as the validator's stake and compliance with staking conditions. Unlike some proof-of-stake systems, the Avalanche Primary Network does not use slashing of bonded principal as an ordinary penalty mechanism. Instead, the main protocol-level economic consequence for underperformance is the loss of reward eligibility. Where a validator fails to satisfy the applicable uptime requirement during its staking term, that validator does not receive the corresponding staking reward. Transaction fees apply on the C-Chain for transfers and smart-contract execution. The fee model follows EIP-1559 logic, meaning that transactions are priced through a dynamic base fee mechanism. In contrast to Ethereum's validator tip model, C-Chain transaction fees are burned rather than distributed to validators. This means that C-Chain fees function as a supply-reduction mechanism and are intended in part to offset inflation arising from the minting of validator rewards. In addition to ordinary transaction and smart-contract execution fees, Avalanche documentation also recognises protocol fees in connection with other network operations on other chains of the Primary Network, such as certain import or export operations and staking-related actions. However, for the C-Chain itself, the core applicable fee category is the gas fee for transaction inclusion and contract execution, and those fees are handled through the protocol burn mechanism rather than paid to validators or a treasury.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

Fantom's incentive model promotes network security through staking rewards, transaction fees, and delegation options, encouraging broad participation.

Incentive Mechanisms:

1. Staking Rewards for Validators:

- Earning Rewards in FTM: Validators who participate in the consensus process earn rewards in FTM tokens, proportional to the amount they have staked. This incentivizes validators to actively secure the network.

- Dynamic Staking Rate: Fantom's staking reward rate is dynamic, adjusting based on total FTM staked across the network. As more FTM is staked, individual rewards may decrease, maintaining a balanced reward structure that supports long-term network security.

2. Delegation for Token Holders:

Delegated Staking: Users who do not operate validator nodes can delegate their FTM tokens to validators. In return, they share in the staking rewards, encouraging wider participation in securing the network.

Applicable Fees:

- Transaction Fees in FTM: Users pay transaction fees in FTM tokens. The network's high throughput and DAG structure keep fees low, making Fantom ideal for decentralized applications (dApps) requiring frequent transactions.
- Efficient Fee Model: The low fees and scalability of the network make it cost-effective for users, fostering a favorable environment for high-volume applications.

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.
- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.

2. Delegators:

- Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.

3. Economic Security:

- Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
- Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Fees Applicable on the Solana Blockchain

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.

2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.

3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.

4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) arbitrum, avalanche, binance_smart_chain, ethereum, fantom, solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Stronghold SHx

SHX | Z9XPPVGGK

Quantitative information

Quantitative sustainability indicators for Stronghold SHx

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Stronghold SHx	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	744.13029	kWh/a

Qualitative information

S.4 Consensus Mechanism

Stronghold SHx is present on the following networks: Ethereum, Ripple, Solana, Stellar.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

The Ripple blockchain, specifically the XRP Ledger (XRPL), uses a consensus mechanism known as the Ripple Protocol Consensus Algorithm (RPCA). It differs from Proof of Work (PoW) and Proof of Stake (PoS) as it doesn't rely on mining or staking but instead leverages trusted validators in a Federated Byzantine Agreement (FBA) model.

Core Concepts:

1. Validators and Unique Node Lists (UNL): Validators are trusted nodes in the network that validate transactions and propose new ledger updates. Each node maintains a list of trusted validators known as its Unique Node List (UNL). Consensus is achieved when 80% of the validators in a node's UNL agree on the validity of a transaction or block. This ensures high levels of security and decentralization.
2. Transaction Ordering and Validation: Transactions are broadcast to validators, and once 80% of the validators agree, the transaction is considered confirmed. Each ledger in the XRPL contains transaction data, and validators ensure the validity and proper ordering of these transactions.

Consensus Process:

1. Proposal Phase: Validators propose new transactions to be added to the ledger.
2. Validation Phase: Validators vote on proposed transactions by comparing them to their UNL. Consensus is achieved when 80% of validators agree.
3. Finalization: Once consensus is reached, the transactions are written into the new ledger, making them irreversible and final.

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):
 - Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
 - Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.
2. Proof of Stake (PoS):
 - Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
 - Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.
2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.
3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

Consensus is reached through the Stellar Consensus Protocol (SCP), which is based on federated Byzantine agreement. This mechanism allows fast finality without mining or staking, but it depends on validators choosing other validators which they trust to reach agreement, called a quorum set. As a result, validator diversity and governance choices play a critical role in security, and concentration of influence among large operators may increase systemic risks.

S.5 Incentive Mechanisms and Applicable Fees

Stronghold SHx is present on the following networks: Ethereum, Ripple, Solana, Stellar.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

The Ripple XRP blockchain uses a unique incentive structure that differs from traditional Proof of Work (PoW) or Proof of Stake (PoS) systems, focusing on its Ripple Protocol Consensus Algorithm (RPCA).

Incentive Mechanisms to Secure Transactions:

1. Validators: Validators on the Ripple network are not directly compensated with rewards like in PoW/PoS models. Instead, they are incentivized by the utility and stability of the network, particularly financial institutions that benefit from Ripple's efficiency in cross-border payments.
2. No Mining: Since Ripple does not use mining, it eliminates the need for energy-intensive computations, contributing to fast transaction speeds and scalability.

Fees on the Ripple XRP Blockchain:

1. Transaction Fees: Ripple charges minimal transaction fees (typically fractions of an XRP, known as "drops") for each transaction. The purpose of these fees is to prevent network spam and overload.
2. Burn Mechanism: A portion of each transaction fee is burned, meaning it's permanently removed from circulation. This reduces the overall supply of XRP over time, contributing to potential long-term value stability.

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:
 - Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.
 - Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.
2. Delegators:
 - Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.
3. Economic Security:
 - Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
 - Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.
2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.

3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.

4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

Stellar does not use block rewards or mining. Instead, validators operate without direct protocol-level rewards. While this design keeps costs low, it may reduce incentives for validator participation compared to staking-based models. The sustainability of validator engagement depends largely on external factors such as institutional involvement and ecosystem adoption.

5.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum, ripple, solana, stellar is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Eigen

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Eigen	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	738.18570	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for AIOZ Network

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	AIOZ Network	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	736.12947	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Axie Infinity Shard

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Axie Infinity Shard	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	730.90504	kWh/a

Qualitative information

S.4 Consensus Mechanism

Axie Infinity Shard is present on the following networks: Binance Smart Chain, Ethereum, Harmony One, Ronin, Solana.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 "Cabinet" validators and 24 "Candidate" validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice

rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

Harmony operates on a consensus mechanism called Effective Proof of Stake (EPoS), designed to balance validator influence and enhance network security while improving transaction scalability.

Core Components:

1. Effective Proof of Stake (EPoS):

- Validator Diversity: EPoS allows a large number of validators to participate and limits the influence of high-stake validators, promoting decentralization and preventing stake centralization.
- Staking Across Shards: Multiple validators compete within each shard, distributing staking power more broadly and enhancing network security.

2. Sharding with PBFT Finality:

- Parallel Transaction Processing: Harmony's four shards enable independent processing of transactions and smart contracts, enhancing scalability and throughput.
- Fast Finality with PBFT: Each shard uses a modified Practical Byzantine Fault Tolerance (PBFT) model, ensuring immediate finality once blocks are validated and achieving high transaction speeds.

Ronin utilizes a Delegated Proof of Stake (DPoS) consensus mechanism, where community-elected validators are responsible for securing the network and validating transactions.

Core Components of Ronin's Consensus:

1. Delegated Proof of Stake (DPoS):

- Community Voting for Validator Selection: RON token holders delegate their tokens to vote for validators, who are then selected to produce blocks, validate transactions, and maintain network security. Validators with the most votes are chosen to participate in consensus.
- Periodic Validator Rotation: Validators are regularly rotated based on community votes, enhancing decentralization and preventing long-term control by any single validator group. This rotation supports both security and fairness.

2. Incentive-Driven Voting System:

Alignment with Community Interests: The voting system ensures that validators remain aligned with community goals. Validators that fail to perform adequately or act against network interests may lose votes and be replaced by more trusted participants.

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.

- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.
- 2. Proof of Stake (PoS):
 - Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
 - Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:
Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.
2. PoH Sequence Generation:
A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.
3. Block Production:
The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.
4. Consensus and Finalization:
Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:
 - Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
 - Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.
2. Security:
 - Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
 - Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.
3. Economic Penalties:
Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Axie Infinity Shard is present on the following networks: Binance Smart Chain, Ethereum, Harmony One, Ronin, Solana.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

Harmony incentivizes validators and delegators to participate in network security and performance through staking rewards, transaction fees, and a unique reward structure promoting decentralization.

Incentive Mechanisms:

1. Staking Rewards for Validators and Delegators:

ONE Token Rewards: Validators earn ONE tokens for validating transactions and securing the network, with a share of these rewards distributed to delegators based on the amount staked.

2. Decentralization Penalty for High Stake:

Reward Adjustment for Large Stakeholders: Validators with an excessive delegated stake experience reduced rewards, preventing centralization and encouraging a fair distribution of staking power.

Applicable Fees:

1. Transaction Fees:

Harmony charges minimal transaction fees in ONE tokens, benefiting high-frequency applications and providing validators with additional rewards.

Ronin's incentive model combines rewards, slashing mechanisms, and governance features to support network security and encourage active community participation.

Incentive Mechanisms:

1. Rewards for Validators and Delegators:

- Staking Rewards for Validators: Validators earn RON tokens as rewards for successfully producing blocks and validating transactions. These rewards incentivize validators to fulfill their duties diligently, maintaining network stability.
- Delegator Rewards: Delegators who stake their tokens with selected validators also earn a portion of the staking rewards. This sharing of rewards promotes broad participation from token holders in network security and governance.

2. Slashing Mechanism for Accountability:

- Penalty for Malicious Behavior: A slashing mechanism penalizes validators who act dishonestly or fail to meet performance standards by cutting a portion of their staked RON tokens. This deters misbehavior and encourages responsible participation.
- Delegator Risk: Delegators who stake with misbehaving validators are also subject to slashing, which encourages them to choose trustworthy validators and monitor performance carefully.

3. Governance Participation:

RON Token for Governance: Beyond staking and transaction fees, the RON token enables token holders to participate in governance. This includes voting on network upgrades, validator selection, and other protocol decisions, giving token holders a voice in network direction and policy.

Applicable Fees:

Transaction Fees: Fees are paid in RON tokens, contributing to validator rewards and helping to maintain network operations. These fees are designed to be affordable, ensuring accessibility for users while supporting validators' roles.

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more

tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.

- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.

2. Delegators:

- Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.

3. Economic Security:

- Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
- Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Fees Applicable on the Solana Blockchain

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.

2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.

3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.

4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) binance_smart_chain, ethereum, harmony_one, ronin, solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Maker

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Maker	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	692.40873	kWh/a

Qualitative information

S.4 Consensus Mechanism

Maker is present on the following networks: Avalanche, Binance Smart Chain, Ethereum.

The Avalanche C-Chain uses the Snowman++ consensus mechanism, which is Avalanche's consensus model for linear blockchains and is implemented through the ProposerVM wrapper. Under this model, validators repeatedly query a small random subset of other validators and converge on a preferred block once the required confidence thresholds are met. Only Primary Network validators are entitled to validate the C-Chain. To participate as a validator on Avalanche mainnet, a node must stake a minimum number of token. Token holders may also participate indirectly by delegating an existing validator. Validator identity and admission to staking require the relevant staking credentials, including BLS proofs of possession under the current staking framework. For block production, Snowman++ uses stake-weighted proposer windows. Through the ProposerVM, block-building opportunities are assigned to proposers in 5-second windows, after which block production may fall back more broadly to validators if necessary. This mechanism is intended to regulate block production while preserving network liveness. Consensus voting itself remains based on repeated sub-sampled polling rather than fixed validator committees. Avalanche documentation describes the finality model as sub-second and treated by the protocol as final and irreversible once accepted, while noting that safety is probabilistic in the formal sense because the probability of conflicting acceptance can be reduced to an arbitrarily low level through the protocol parameters. The protocol does not rely on slashing of staked principal. Instead, validator reward eligibility depends on compliance with protocol conditions, including uptime requirements.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum’s consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Maker is present on the following networks: Avalanche, Binance Smart Chain, Ethereum.

The Avalanche C-Chain is secured economically through the native AVAX token. Validator incentives are based primarily on staking rewards, not on redistribution of C-Chain transaction fees. A fixed amount of 360 million AVAX was minted at genesis, while additional AVAX is minted over time as validator rewards, subject to Avalanche’s capped token supply framework. Validator rewards are paid at the end of the staking period and are determined by factors such as the validator’s stake and compliance with staking conditions. Unlike some proof-of-stake systems, the Avalanche Primary Network does not use slashing of bonded principal as an ordinary penalty mechanism. Instead, the main protocol-level economic consequence for underperformance is the loss of reward eligibility. Where a validator fails to satisfy the applicable uptime requirement during its staking term, that validator does not receive the corresponding staking reward. Transaction fees apply on the C-Chain for transfers and smart-contract execution. The fee model follows EIP-1559 logic, meaning that transactions are priced through a dynamic base fee mechanism. In contrast to Ethereum’s validator tip model, C-Chain transaction fees are burned rather than distributed to validators. This means that C-Chain fees function as a supply-reduction mechanism and are intended in part to offset inflation arising from the minting of validator rewards. In addition to ordinary transaction and smart-contract execution fees, Avalanche documentation also recognises protocol fees in connection with other network operations on other chains of the Primary Network, such as certain import or export operations and staking-related actions. However, for the C-Chain itself, the core applicable fee

category is the gas fee for transaction inclusion and contract execution, and those fees are handled through the protocol burn mechanism rather than paid to validators or a treasury.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) avalanche, binance_smart_chain, ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is

determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



The Interfold

FOLD | /

Quantitative information

Quantitative sustainability indicators for The Interfold

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	The Interfold	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	683.51841	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Bancor

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Bancor	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	669.76296	kWh/a

Qualitative information

S.4 Consensus Mechanism

Bancor is present on the following networks: Ethereum, Gnosis Chain, Solana.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

Gnosis Chain – Consensus Mechanism Gnosis Chain employs a dual-layer structure to balance scalability and security, using Proof of Stake (PoS) for its core consensus and transaction finality.

Core Components:

- Two-Layer Structure Layer 1: Gnosis Beacon Chain The Gnosis Beacon Chain operates on a Proof of Stake (PoS) mechanism, acting as the security and consensus backbone. Validators stake GNO tokens on the Beacon Chain and validate transactions, ensuring network security and finality.
- Layer 2: Gnosis xDai Chain processes transactions and dApp interactions, providing high-speed, low-cost transactions. Layer 2 transaction data is finalized on the Gnosis Beacon Chain, creating an integrated framework where Layer 1 ensures security and finality, and Layer 2 enhances scalability. Validator Role and Staking Validators on the Gnosis Beacon Chain stake GNO tokens and participate in consensus by validating blocks. This setup ensures that validators have an economic interest in maintaining the security and integrity of both the Beacon Chain (Layer 1) and the xDai Chain (Layer 2). Cross-Layer Security Transactions on Layer 2 are ultimately finalized on Layer 1, providing security and finality to all activities on the Gnosis Chain. This architecture allows Gnosis Chain to combine the speed and cost efficiency of Layer 2 with the security guarantees of a PoS-secured Layer 1, making it suitable for both high-frequency applications and secure asset management.

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Bancor is present on the following networks: Ethereum, Gnosis Chain, Solana.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

The Gnosis Chain's incentive and fee models encourage both validator participation and network accessibility, using a dual-token system to maintain low transaction costs and effective staking rewards.

Incentive Mechanisms:

- Staking Rewards for Validators GNO Rewards: Validators earn staking rewards in GNO tokens for their participation in consensus and securing the network.

- Delegation Model: GNO holders who do not operate validator nodes can delegate their GNO tokens to validators, allowing them to share in staking rewards and encouraging broader participation in network security.
- Dual-Token Model GNO: Used for staking, governance, and validator rewards, GNO aligns long-term network security incentives with token holders' economic interests.
- xDai: Serves as the primary transaction currency, providing stable and low-cost transactions. The use of a stable token (xDai) for fees minimizes volatility and offers predictable costs for users and developers.

Applicable Fees:

Transaction Fees in xDai Users pay transaction fees in xDai, the stable fee token, making costs affordable and predictable. This model is especially suited for high-frequency applications and dApps where low transaction fees are essential. xDai transaction fees are redistributed to validators as part of their compensation, aligning their rewards with network activity. Delegated Staking Rewards Through delegated staking, GNO holders can earn a share of staking rewards by delegating their tokens to active validators, promoting user participation in network security without requiring direct involvement in consensus operations.

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.
- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.

2. Delegators:

- Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.

3. Economic Security:

- Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
- Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Fees Applicable on the Solana Blockchain

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.

2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.

3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.

4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum, gnosis_chain, solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Fartcoin

FARTCOIN | Z673VT588

Quantitative information

Quantitative sustainability indicators for Fartcoin

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Fartcoin	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	652.61017	kWh/a

Qualitative information

S.4 Consensus Mechanism

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.

- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.
- 2. Delegators:
 - Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.
- 3. Economic Security:
 - Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
 - Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.
2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.
3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.
4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Ethereum Name Service

ENS | B70SMJ5DQ

Quantitative information

Quantitative sustainability indicators for Ethereum Name Service

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Ethereum Name Service	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	646.50631	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum Name Service is present on the following networks: Ethereum, Solana.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum Name Service is present on the following networks: Ethereum, Solana.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.
- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.

2. Delegators:

- Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.

3. Economic Security:

- Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
- Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties. Fees Applicable on the Solana Blockchain

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.

2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.

3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.

4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum, solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Graph Token

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Graph Token	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	626.37946	kWh/a

Qualitative information

S.4 Consensus Mechanism

Graph Token is present on the following networks: Arbitrum, Ethereum.

Arbitrum is an optimistic rollup that processes transactions on a Layer 2 network and relies on Ethereum for data availability and settlement. A sequencer orders incoming transactions, executes them and publishes compressed transaction batches to Ethereum. Arbitrum nodes can independently reconstruct and verify the resulting Layer 2 state using the transaction data published on the parent chain. Validators submit assertions representing the state of the network. Under the BoLD dispute protocol, conflicting or incorrect assertions may be challenged and resolved through an interactive fraud-proof process on Ethereum. Once an assertion has been confirmed and the applicable challenge process has been completed, the corresponding Layer 2 state is accepted for settlement purposes.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in

certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Graph Token is present on the following networks: Arbitrum, Ethereum.

Transactions on Arbitrum are subject to fees paid in ETH. The total fee generally consists of a Layer 2 execution component, which covers the computational resources required to process the transaction, and a parent-chain data component, which reflects the cost of publishing compressed transaction data to Ethereum. The amount payable therefore depends on the computational complexity of the transaction, the volume and compressibility of its data and the prevailing cost of data publication on Ethereum. Participants that submit or challenge state assertions under the dispute protocol must provide economic bonds. These bonds are intended to discourage incorrect assertions and compensate successful participants in the dispute process. Withdrawals through the canonical bridge become executable after the relevant Layer 2 state has been confirmed and the applicable challenge period has elapsed.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) arbitrum, ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Compound

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Compound	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	585.75271	kWh/a

Qualitative information

S.4 Consensus Mechanism

Compound is present on the following networks: Avalanche, Binance Smart Chain, Ethereum, Gnosis Chain, Near Protocol, Solana.

The Avalanche C-Chain uses the Snowman++ consensus mechanism, which is Avalanche's consensus model for linear blockchains and is implemented through the ProposerVM wrapper. Under this model, validators repeatedly query a small random subset of other validators and converge on a preferred block once the required confidence thresholds are met. Only Primary Network validators are entitled to validate the C-Chain. To participate as a validator on Avalanche mainnet, a node must stake a minimum number of token. Token holders may also participate indirectly by delegating an existing validator. Validator identity and admission to staking require the relevant staking credentials, including BLS proofs of possession under the current staking framework. For block production, Snowman++ uses stake-weighted proposer windows. Through the ProposerVM, block-building opportunities are assigned to proposers in 5-second windows, after which block production may fall back more broadly to validators if necessary. This mechanism is intended to regulate block production while preserving network liveness. Consensus voting itself remains based on repeated sub-sampled polling rather than fixed validator committees. Avalanche documentation describes the finality model as sub-second and treated by the protocol as final and irreversible once accepted, while noting that safety is probabilistic in the formal sense because the probability of conflicting acceptance can be reduced to an arbitrarily low level through the protocol parameters. The protocol does not rely on slashing of staked principal. Instead, validator reward eligibility depends on compliance with protocol conditions, including uptime requirements.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum’s consensus mechanism and Layer 2 functionality.

Gnosis Chain – Consensus Mechanism Gnosis Chain employs a dual-layer structure to balance scalability and security, using Proof of Stake (PoS) for its core consensus and transaction finality.

Core Components:

- **Two-Layer Structure** Layer 1: Gnosis Beacon Chain The Gnosis Beacon Chain operates on a Proof of Stake (PoS) mechanism, acting as the security and consensus backbone. Validators stake GNO tokens on the Beacon Chain and validate transactions, ensuring network security and finality.
 - **Layer 2: Gnosis xDai Chain** processes transactions and dApp interactions, providing high-speed, low-cost transactions. Layer 2 transaction data is finalized on the Gnosis Beacon Chain, creating an integrated framework where Layer 1 ensures security and finality, and Layer 2 enhances scalability.
- Validator Role and Staking** Validators on the Gnosis Beacon Chain stake GNO tokens and participate in consensus by validating blocks. This setup ensures that validators have an economic interest in maintaining the security and integrity of both the Beacon Chain (Layer 1) and the xDai Chain (Layer 2). **Cross-Layer Security** Transactions on Layer 2 are ultimately finalized on Layer 1, providing security and finality to all activities on the Gnosis Chain. This architecture allows Gnosis Chain to combine the speed and cost efficiency of Layer 2 with the security guarantees of a PoS-secured Layer 1, making it suitable for both high-frequency applications and secure asset management.

The NEAR Protocol uses a unique consensus mechanism combining Proof of Stake (PoS) and a novel approach called Doomslug, which enables high efficiency, fast transaction processing, and secure finality in its operations.

Core Concepts:

1. Doomslug and Proof of Stake:

- NEAR's consensus mechanism primarily revolves around PoS, where validators stake NEAR tokens to participate in securing the network. However, NEAR's implementation is enhanced with the Doomslug protocol.
- Doomslug allows the network to achieve fast block finality by requiring blocks to be confirmed in two stages. Validators propose blocks in the first step, and finalization occurs when two-thirds of validators approve the block, ensuring rapid transaction confirmation.

2. Sharding with Nightshade:

- NEAR uses a dynamic sharding technique called Nightshade. This method splits the network into multiple shards, enabling parallel processing of transactions across the network, thus significantly increasing throughput. Each shard processes a portion of transactions, and the outcomes are merged into a single "snapshot" block.
- This sharding approach ensures scalability, allowing the network to grow and handle increasing demand efficiently.

Consensus Process:

1. Validator Selection:

- Validators are selected to propose and validate blocks based on the amount of NEAR tokens staked. This selection process is designed to ensure that only validators with significant stakes and community trust participate in securing the network.

2. Transaction Finality:

- NEAR achieves transaction finality through its PoS-based system, where validators vote on blocks. Once two-thirds of validators approve a block, it reaches finality under Doomslug, meaning that no forks can alter the confirmed state.

3. Epochs and Rotation:

- Validators are rotated in epochs to ensure fairness and decentralization. Epochs are intervals in which validators are reshuffled, and new block proposers are selected, ensuring a balance between performance and decentralization.

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Compound is present on the following networks: Avalanche, Binance Smart Chain, Ethereum, Gnosis Chain, Near Protocol, Solana.

The Avalanche C-Chain is secured economically through the native AVAX token. Validator incentives are based primarily on staking rewards, not on redistribution of C-Chain transaction fees. A fixed amount of 360 million AVAX was minted at genesis, while additional AVAX is minted over time as validator rewards, subject to Avalanche's capped token supply framework. Validator rewards are paid at the end of the staking period and are determined by factors such as the validator's stake and compliance with staking conditions. Unlike some proof-of-stake systems, the Avalanche Primary Network does not use slashing of bonded principal as an ordinary penalty mechanism. Instead, the

main protocol-level economic consequence for underperformance is the loss of reward eligibility. Where a validator fails to satisfy the applicable uptime requirement during its staking term, that validator does not receive the corresponding staking reward. Transaction fees apply on the C-Chain for transfers and smart-contract execution. The fee model follows EIP-1559 logic, meaning that transactions are priced through a dynamic base fee mechanism. In contrast to Ethereum's validator tip model, C-Chain transaction fees are burned rather than distributed to validators. This means that C-Chain fees function as a supply-reduction mechanism and are intended in part to offset inflation arising from the minting of validator rewards. In addition to ordinary transaction and smart-contract execution fees, Avalanche documentation also recognises protocol fees in connection with other network operations on other chains of the Primary Network, such as certain import or export operations and staking-related actions. However, for the C-Chain itself, the core applicable fee category is the gas fee for transaction inclusion and contract execution, and those fees are handled through the protocol burn mechanism rather than paid to validators or a treasury.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to

slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

The Gnosis Chain's incentive and fee models encourage both validator participation and network accessibility, using a dual-token system to maintain low transaction costs and effective staking rewards.

Incentive Mechanisms:

- Staking Rewards for Validators GNO Rewards: Validators earn staking rewards in GNO tokens for their participation in consensus and securing the network.
- Delegation Model: GNO holders who do not operate validator nodes can delegate their GNO tokens to validators, allowing them to share in staking rewards and encouraging broader participation in network security.
- Dual-Token Model GNO: Used for staking, governance, and validator rewards, GNO aligns long-term network security incentives with token holders' economic interests.
- xDai: Serves as the primary transaction currency, providing stable and low-cost transactions. The use of a stable token (xDai) for fees minimizes volatility and offers predictable costs for users and developers.

Applicable Fees:

Transaction Fees in xDai Users pay transaction fees in xDai, the stable fee token, making costs affordable and predictable. This model is especially suited for high-frequency applications and dApps where low transaction fees are essential. xDai transaction fees are redistributed to validators as part of their compensation, aligning their rewards with network activity. Delegated Staking Rewards Through delegated staking, GNO holders can earn a share of staking rewards by delegating their tokens to active validators, promoting user participation in network security without requiring direct involvement in consensus operations.

NEAR Protocol employs several economic mechanisms to secure the network and incentivize participation.

Incentive Mechanisms to Secure Transactions:

1. Staking Rewards:

Validators and delegators secure the network by staking NEAR tokens. Validators earn around 5% annual inflation, with 90% of newly minted tokens distributed as staking rewards. Validators propose blocks, validate transactions, and receive a share of these rewards based on their staked tokens. Delegators earn rewards proportional to their delegation, encouraging broad participation.

2. Delegation:

Token holders can delegate their NEAR tokens to validators to increase the validator's stake and improve the chances of being selected to validate transactions. Delegators share in the validator's rewards based on their delegated tokens, incentivizing users to support reliable validators.

3. Slashing and Economic Penalties:

Validators face penalties for malicious behavior, such as failing to validate correctly or acting dishonestly. The slashing mechanism enforces security by deducting a portion of their staked tokens, ensuring validators follow the network's best interests.

4. Epoch Rotation and Validator Selection:

Validators are rotated regularly during epochs to ensure fairness and prevent centralization. Each epoch reshuffles validators, allowing the protocol to balance decentralization with performance.

Fees on the NEAR Blockchain:

1. Transaction Fees:

Users pay fees in NEAR tokens for transaction processing, which are burned to reduce the total circulating supply, introducing a potential deflationary effect over time. Validators also receive a portion of transaction fees as additional rewards, providing an ongoing incentive for network maintenance.

2. Storage Fees:

NEAR Protocol charges storage fees based on the amount of blockchain storage consumed by accounts, contracts, and data. This requires users to hold NEAR tokens as a deposit proportional to their storage usage, ensuring the efficient use of network resources.

3. Redistribution and Burning:

A portion of the transaction fees (burned NEAR tokens) reduces the overall supply, while the rest is distributed to validators as compensation for their work. The burning mechanism helps maintain long-term economic sustainability and potential value appreciation for NEAR holders.

4. Reserve Requirement:

Users must maintain a minimum account balance and reserves for data storage, encouraging efficient use of resources and preventing spam attacks.

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- **Staking Rewards:** Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.
- **Transaction Fees:** Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.

2. Delegators:

- **Delegated Staking:** Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.

3. Economic Security:

- **Slashing:** Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
- **Opportunity Cost:** By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Fees Applicable on the Solana Blockchain

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.

2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.

3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.

4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) avalanche, binance_smart_chain, ethereum, gnosis_chain, near_protocol, solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Derive

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Derive	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	579.81973	kWh/a

Qualitative information

S.4 Consensus Mechanism

Derive is present on the following networks: Arbitrum, Base, Ethereum, Optimism.

Arbitrum is an optimistic rollup that processes transactions on a Layer 2 network and relies on Ethereum for data availability and settlement. A sequencer orders incoming transactions, executes them and publishes compressed transaction batches to Ethereum. Arbitrum nodes can independently reconstruct and verify the resulting Layer 2 state using the transaction data published on the parent chain. Validators submit assertions representing the state of the network. Under the BoLD dispute protocol, conflicting or incorrect assertions may be challenged and resolved through an interactive fraud-proof process on Ethereum. Once an assertion has been confirmed and the applicable challenge process has been completed, the corresponding Layer 2 state is accepted for settlement purposes.

Base does not operate its own consensus mechanism or decentralised validator set comparable to a Layer-1 blockchain. As an optimistic rollup Layer-2 network, Base relies on Ethereum's Proof-of-Stake consensus for the finality and settlement of data and state commitments posted to Ethereum Layer 1. Transaction ordering on Base is performed by a sequencer, currently operated by Coinbase. This sequencing function provides transaction ordering and execution on the Layer-2 network but does not constitute a decentralised consensus mechanism. The validity of Layer-2 state transitions is supported by an optimistic fault-proof mechanism, under which incorrect state commitments may be challenged during the applicable dispute period. Accordingly, Base's security model depends on

Ethereum Layer 1 for settlement and finality, while Layer-2 transaction ordering remains dependent on the sequencer.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

Since Optimism is based on Ethereum, it ultimately inherits its security via the Ethereum blockchain and the proof-of-stake consensus. Within the rollup system, Optimism relies on a "fault proof" procedure. By default, transactions are assumed to be correct ("optimistic"). Only in the event of suspected faults is a fault proof initiated, in which incorrect transactions can be challenged by challengers. This model allows for high efficiency while ensuring correctness.

S.5 Incentive Mechanisms and Applicable Fees

Derive is present on the following networks: Arbitrum, Base, Ethereum, Optimism.

Transactions on Arbitrum are subject to fees paid in ETH. The total fee generally consists of a Layer 2 execution component, which covers the computational resources required to process the transaction, and a parent-chain data component, which reflects the cost of publishing compressed transaction data to Ethereum. The amount payable therefore depends on the computational complexity of the transaction, the volume and compressibility of its data and the prevailing cost of data publication on Ethereum. Participants that submit or challenge state assertions under the dispute protocol must provide economic bonds. These bonds are intended to discourage incorrect assertions and compensate successful participants in the dispute process. Withdrawals through the canonical bridge become executable after the relevant Layer 2 state has been confirmed and the applicable challenge period has elapsed.

Base does not have a native protocol token and does not operate a staking, validator reward or token issuance mechanism. Transaction fees on Base are paid in ETH. The economic incentives within the network are primarily related to transaction processing and network security. Transactions are executed on Base and periodically submitted to Ethereum Layer 1 in batches. As the cost of a Layer-1 submission is shared among multiple Layer-2 transactions, the average transaction cost per transaction may be lower than executing the same transactions directly on Ethereum Layer 1. The integrity of withdrawals from Base is supported by a fault-proof mechanism. Withdrawals are subject to a dispute period during which participants may challenge incorrect state commitments. The dispute process incorporates economic incentives intended to encourage honest behaviour and discourage invalid claims.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following

the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

Optimism charges lower transaction fees than Ethereum Layer 1, as transactions are bundled in the rollup and written to the Ethereum main chain in compressed form. Gas fees on Optimism continue to be paid in ETH. The incentive model is based on increased efficiency for users (lower fees, faster confirmation) and on the role of sequencers. Sequencers are central actors who collect, organize, and include transactions in the rollup. Their revenue comes from the gas fees they charge.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) arbitrum, base, ethereum, optimism is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for World Liberty Financial

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	World Liberty Financial	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	572.49801	kWh/a

Qualitative information

S.4 Consensus Mechanism

World Liberty Financial is present on the following networks: Binance Smart Chain, Ethereum, Solana.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon

Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

World Liberty Financial is present on the following networks: Binance Smart Chain, Ethereum, Solana.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.
- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.

2. Delegators:

- Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.

3. Economic Security:

- Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
- Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties. Fees Applicable on the Solana Blockchain

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.

2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.

3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.

4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) binance_smart_chain, ethereum, solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Render Token

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Render Token	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	558.31024	kWh/a

Qualitative information

S.4 Consensus Mechanism

Render Token is present on the following networks: Ethereum, Solana.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Render Token is present on the following networks: Ethereum, Solana.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.
- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.

2. Delegators:

- Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.

3. Economic Security:

- Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
- Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties. Fees Applicable on the Solana Blockchain

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.

2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.

3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.

4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum, solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Yield Basis

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Yield Basis	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	551.63623	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for SAND

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	SAND	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	524.07127	kWh/a

Qualitative information

S.4 Consensus Mechanism

SAND is present on the following networks: Ethereum, Polygon, Solana.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

Polygon PoS is an EVM-compatible sidechain that operates with a Proof-of-Stake consensus mechanism and periodically submits checkpoints to the Ethereum mainnet. The network maintains its own validator set and processes transactions independently from Ethereum, while using Ethereum smart contracts for staking-related functions and checkpoint verification. Polygon PoS therefore uses Ethereum as a staking and checkpointing layer, but does not rely on Ethereum for full

transaction execution or transaction data availability. The Polygon-side architecture consists of two primary node layers. The Bor layer is responsible for transaction execution and block production. The Heimdall layer is responsible for validator coordination, staking-related monitoring, consensus, and checkpoint finalisation. Heimdall is based on Cosmos SDK and CometBFT and aggregates blocks produced by Bor into periodic Merkle-root checkpoints that are submitted to smart contracts on the Ethereum mainnet. Validators participate in the network by staking POL tokens. Token holders may delegate POL tokens to validators, contributing to the validator's effective stake and participating indirectly in network validation. Following the Rio upgrade, Polygon PoS uses a Validator-Elected Block Producer model. Under this model, validators elect the block producer or block producers for a span, rather than relying on the previous stake-weighted selection model for multiple block producers over shorter intervals. Block production and transaction execution are performed on the Bor layer, while Heimdall validators coordinate consensus and checkpoint finalisation. At regular intervals, Heimdall validators aggregate blocks into a Merkle root and submit the resulting checkpoint to Ethereum smart contracts. These checkpoints provide an additional verification layer and support cross-chain verification, including in the context of asset transfers between Polygon PoS and Ethereum. This design enables higher transaction throughput and lower transaction costs than the Ethereum mainnet, while maintaining a technical connection to Ethereum through staking contracts and periodic checkpointing. Polygon PoS should therefore be understood as an independent sidechain or commit-chain architecture, rather than a rollup that inherits full execution and data availability security from Ethereum.

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

SAND is present on the following networks: Ethereum, Polygon, Solana.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

Polygon PoS uses economic incentives to support validator participation, transaction processing, and network operation. Validators stake POL tokens and participate in block production, validation, voting, and checkpoint finalisation. Validators may receive rewards connected to their participation in the network, including rewards linked to validation activities and transaction-fee allocation,

depending on the applicable protocol rules. Token holders who do not operate validator infrastructure may delegate POL tokens to validators. Delegators may receive a share of rewards attributable to the validator to whom they delegate, subject to the validator's commission and applicable protocol rules. Delegation increases the validator's effective stake and may affect its role in the validator set and related network processes. Following the Rio upgrade, Polygon PoS introduced a Validator-Elected Block Producer model, under which validators elect the block producer or block producers for a span. Publicly described protocol changes associated with this model also provide for redistribution of fees, including maximum extractable value-related fees where applicable, to non-producing validators under the relevant protocol design. This changes the incentive structure from the previous model in which block production selection was more directly described by reference to stake-weighted producer selection. Polygon PoS includes protocol specifications for validator penalties, including slashing-related concepts. Transactions on Polygon PoS require payment of network fees in POL. Fees apply to ordinary token transfers, smart contract deployment, and smart contract interaction. The amount of fees may vary depending on network demand, transaction complexity, and computational resources required. Because Polygon PoS processes transactions independently from Ethereum, transaction fees are generally designed to be lower than equivalent activity on the Ethereum mainnet, although actual fees may change according to network conditions and protocol parameters.

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.
- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.

2. Delegators:

- Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.

3. Economic Security:

- Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
- Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Fees Applicable on the Solana Blockchain

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.

2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.

3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.

4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum, polygon, solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Phala

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Phala	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	520.08377	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Syrup Token

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Syrup Token	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	518.31116	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Aethir Token

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Aethir Token	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	503.35033	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Turbo

TURBO | 3GCHWJSWC

Quantitative information

Quantitative sustainability indicators for Turbo

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Turbo	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	501.79043	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for StarkNet Token

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	StarkNet Token	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	498.74154	kWh/a

Qualitative information

S.4 Consensus Mechanism

StarkNet Token is present on the following networks: Ethereum, Starknet.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

Starknet employs zero-knowledge rollups (ZK-Rollups) for transaction aggregation and scalability, ensuring efficiency and security through succinct proof submissions to Ethereum.

Core Components:

- Zero-Knowledge Rollups (ZK-Rollups):
Aggregates multiple off-chain transactions into a single proof, which is submitted to Ethereum's mainnet, reducing computational load and gas costs.
- Sequencer and Prover Roles:
 - Sequencers: Order and batch transactions for efficient processing.
 - Provers: Generate validity proofs ensuring the correctness of processed batches.
- Instant Finality:
Transactions are final once a proof is verified and accepted on Ethereum, minimizing the risk of chain reorganizations and enhancing reliability.

S.5 Incentive Mechanisms and Applicable Fees

StarkNet Token is present on the following networks: Ethereum, Starknet.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

Starknet's incentive model combines transaction fees and plans for future staking rewards to support network operations and security.

Incentive Mechanisms:

- Transaction Fees: Users pay fees in Ether (ETH) to compensate sequencers and cover the cost of proof submission and storage on Ethereum.
- Dynamic Fee Model: Fees adjust based on transaction complexity and resource requirements, ensuring fair cost distribution and efficient network usage.
- Future Staking Rewards: Planned staking mechanisms will incentivize participants to lock their STARK tokens, enhancing network security and governance.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum, starknet is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the

Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Reserve Rights

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Reserve Rights	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	493.42209	kWh/a

Qualitative information

S.4 Consensus Mechanism

Reserve Rights is present on the following networks: Base, Binance Smart Chain, Ethereum.

Base does not operate its own consensus mechanism or decentralised validator set comparable to a Layer-1 blockchain. As an optimistic rollup Layer-2 network, Base relies on Ethereum's Proof-of-Stake consensus for the finality and settlement of data and state commitments posted to Ethereum Layer 1. Transaction ordering on Base is performed by a sequencer, currently operated by Coinbase. This sequencing function provides transaction ordering and execution on the Layer-2 network but does not constitute a decentralised consensus mechanism. The validity of Layer-2 state transitions is supported by an optimistic fault-proof mechanism, under which incorrect state commitments may be challenged during the applicable dispute period. Accordingly, Base's security model depends on Ethereum Layer 1 for settlement and finality, while Layer-2 transaction ordering remains dependent on the sequencer.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 "Cabinet" validators and 24 "Candidate" validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by

validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Reserve Rights is present on the following networks: Base, Binance Smart Chain, Ethereum.

Base does not have a native protocol token and does not operate a staking, validator reward or token issuance mechanism. Transaction fees on Base are paid in ETH. The economic incentives within the network are primarily related to transaction processing and network security. Transactions are executed on Base and periodically submitted to Ethereum Layer 1 in batches. As the cost of a Layer-1 submission is shared among multiple Layer-2 transactions, the average transaction cost per transaction may be lower than executing the same transactions directly on Ethereum Layer 1. The integrity of withdrawals from Base is supported by a fault-proof mechanism. Withdrawals are subject to a dispute period during which participants may challenge incorrect state commitments. The dispute process incorporates economic incentives intended to encourage honest behaviour and discourage invalid claims.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The

staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) base, binance_smart_chain, ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Picasso

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Picasso	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	488.80987	kWh/a

Qualitative information

S.4 Consensus Mechanism

Picasso is present on the following networks: Ethereum, Osmosis, Solana.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

Osmosis operates on a Proof of Stake (PoS) consensus mechanism, leveraging the Cosmos SDK and Tendermint Core to provide secure, decentralized, and scalable transaction processing.

Core Components:

- Proof of Stake (PoS): Validators are chosen based on the amount of OSMO tokens they stake or are delegated by other token holders. Validators are responsible for validating transactions, producing blocks, and maintaining network security.
- Cosmos SDK and Tendermint Core: Osmosis uses Tendermint Core for Byzantine Fault Tolerant (BFT) consensus, ensuring fast finality and resistance to attacks as long as less than one-third of validators are malicious.
- Decentralized Governance: OSMO token holders can participate in governance by voting on protocol upgrades and network parameters, fostering a community-driven approach to network development.

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Picasso is present on the following networks: Ethereum, Osmosis, Solana.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

Osmosis incentivizes validators, delegators, and liquidity providers through a combination of staking rewards, transaction fees, and liquidity incentives.

Incentive Mechanisms:

- Validator Rewards: Validators earn rewards from transaction fees and block rewards, distributed in OSMO tokens, for their role in securing the network and processing transactions. Delegators who stake their OSMO tokens with validators receive a share of these rewards.
- Liquidity Provider Rewards: Users providing liquidity to Osmosis pools earn swap fees and may receive additional incentives in the form of OSMO tokens to encourage liquidity provision.
- Superfluid Staking: Liquidity providers can participate in superfluid staking, staking a portion of their OSMO tokens within liquidity pools. This mechanism allows users to earn staking rewards while maintaining liquidity in the pools.

Applicable Fees:

Transaction Fees: Users pay transaction fees in OSMO tokens for network activities, including swaps, staking, and governance participation. These fees are distributed to validators and delegators, incentivizing their continued participation and support for network security.

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- **Staking Rewards:** Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.
- **Transaction Fees:** Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.

2. Delegators:

- **Delegated Staking:** Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.

3. Economic Security:

- **Slashing:** Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
- **Opportunity Cost:** By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Fees Applicable on the Solana Blockchain

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.

2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.

3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.

4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum, osmosis, solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



LRC | NZCPF6J82

Quantitative information

Quantitative sustainability indicators for LoopringCoin V2

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	LoopringCoin V2	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	478.39198	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for yearn.finance

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	yearn.finance	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	474.60610	kWh/a

Qualitative information

S.4 Consensus Mechanism

yearn.finance is present on the following networks: Arbitrum, Avalanche, Binance Smart Chain, Ethereum, Fantom, Gnosis Chain, Huobi, Near Protocol, Solana.

Arbitrum is an optimistic rollup that processes transactions on a Layer 2 network and relies on Ethereum for data availability and settlement. A sequencer orders incoming transactions, executes them and publishes compressed transaction batches to Ethereum. Arbitrum nodes can independently reconstruct and verify the resulting Layer 2 state using the transaction data published on the parent chain. Validators submit assertions representing the state of the network. Under the BoLD dispute protocol, conflicting or incorrect assertions may be challenged and resolved through an interactive fraud-proof process on Ethereum. Once an assertion has been confirmed and the applicable challenge process has been completed, the corresponding Layer 2 state is accepted for settlement purposes.

The Avalanche C-Chain uses the Snowman++ consensus mechanism, which is Avalanche's consensus model for linear blockchains and is implemented through the ProposerVM wrapper. Under this model, validators repeatedly query a small random subset of other validators and converge on a preferred block once the required confidence thresholds are met. Only Primary Network validators are entitled to validate the C-Chain. To participate as a validator on Avalanche mainnet, a node must stake a minimum number of token. Token holders may also participate indirectly by delegating an existing validator. Validator identity and admission to staking require the relevant staking credentials, including BLS proofs of possession under the current staking framework. For block production,

Snowman++ uses stake-weighted proposer windows. Through the ProposerVM, block-building opportunities are assigned to proposers in 5-second windows, after which block production may fall back more broadly to validators if necessary. This mechanism is intended to regulate block production while preserving network liveness. Consensus voting itself remains based on repeated sub-sampled polling rather than fixed validator committees. Avalanche documentation describes the finality model as sub-second and treated by the protocol as final and irreversible once accepted, while noting that safety is probabilistic in the formal sense because the probability of conflicting acceptance can be reduced to an arbitrarily low level through the protocol parameters. The protocol does not rely on slashing of staked principal. Instead, validator reward eligibility depends on compliance with protocol conditions, including uptime requirements.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum’s consensus mechanism and Layer 2 functionality.

Fantom operates on the Lachesis Protocol, an Asynchronous Byzantine Fault Tolerant (aBFT) consensus mechanism designed for fast, secure, and scalable transactions.

Core Components of Fantom’s Consensus:

1. Lachesis Protocol (aBFT):

- Asynchronous and Leaderless: Lachesis allows nodes to reach consensus independently without relying on a central leader, enhancing decentralization and speed.
- DAG Structure: Instead of a linear blockchain, Lachesis uses a Directed Acyclic Graph (DAG) structure, allowing multiple transactions to be processed in parallel across nodes. This structure supports high throughput, making the network suitable for applications requiring rapid transaction processing.

2. Event Blocks and Instant Finality:

- Event Blocks: Transactions are grouped into event blocks, which are validated asynchronously by multiple validators. When enough validators confirm an event block, it becomes part of the Fantom network's history.
- Instant Finality: Transactions on Fantom achieve immediate finality, meaning they are confirmed and cannot be reversed. This property is ideal for applications requiring fast and irreversible transactions.

Gnosis Chain – Consensus Mechanism Gnosis Chain employs a dual-layer structure to balance scalability and security, using Proof of Stake (PoS) for its core consensus and transaction finality.

Core Components:

- Two-Layer Structure Layer 1: Gnosis Beacon Chain The Gnosis Beacon Chain operates on a Proof of Stake (PoS) mechanism, acting as the security and consensus backbone. Validators stake GNO tokens on the Beacon Chain and validate transactions, ensuring network security and finality.
- Layer 2: Gnosis xDai Chain processes transactions and dApp interactions, providing high-speed, low-cost transactions. Layer 2 transaction data is finalized on the Gnosis Beacon Chain, creating an integrated framework where Layer 1 ensures security and finality, and Layer 2 enhances scalability. Validator Role and Staking Validators on the Gnosis Beacon Chain stake GNO tokens and participate in consensus by validating blocks. This setup ensures that validators have an economic interest in maintaining the security and integrity of both the Beacon Chain (Layer 1) and the xDai Chain (Layer 2). Cross-Layer Security Transactions on Layer 2 are ultimately finalized on Layer 1, providing security and finality to all activities on the Gnosis Chain. This architecture allows Gnosis Chain to combine the speed and cost efficiency of Layer 2 with the security guarantees of a PoS-secured Layer 1, making it suitable for both high-frequency applications and secure asset management.

The Huobi Eco Chain (HECO) blockchain employs a Hybrid-Proof-of-Stake (HPoS) consensus mechanism, combining elements of Proof-of-Stake (PoS) to enhance transaction efficiency and scalability.

Key Features of HECO's Consensus Mechanism:

1. Validator Selection: HECO supports up to 21 validators, selected based on their stake in the network.
2. Transaction Processing: Validators are responsible for processing transactions and adding blocks to the blockchain.
3. Transaction Finality: The consensus mechanism ensures quick finality, allowing for rapid confirmation of transactions.
4. Energy Efficiency: By utilizing PoS elements, HECO reduces energy consumption compared to traditional Proof-of-Work systems.

The NEAR Protocol uses a unique consensus mechanism combining Proof of Stake (PoS) and a novel approach called Doomslug, which enables high efficiency, fast transaction processing, and secure finality in its operations.

Core Concepts:

1. Doomslug and Proof of Stake:

- NEAR's consensus mechanism primarily revolves around PoS, where validators stake NEAR tokens to participate in securing the network. However, NEAR's implementation is enhanced with the Doomslug protocol.

- Dooomslug allows the network to achieve fast block finality by requiring blocks to be confirmed in two stages. Validators propose blocks in the first step, and finalization occurs when two-thirds of validators approve the block, ensuring rapid transaction confirmation.

2. Sharding with Nightshade:

- NEAR uses a dynamic sharding technique called Nightshade. This method splits the network into multiple shards, enabling parallel processing of transactions across the network, thus significantly increasing throughput. Each shard processes a portion of transactions, and the outcomes are merged into a single "snapshot" block.
- This sharding approach ensures scalability, allowing the network to grow and handle increasing demand efficiently.

Consensus Process:

1. Validator Selection:

- Validators are selected to propose and validate blocks based on the amount of NEAR tokens staked. This selection process is designed to ensure that only validators with significant stakes and community trust participate in securing the network.

2. Transaction Finality:

- NEAR achieves transaction finality through its PoS-based system, where validators vote on blocks. Once two-thirds of validators approve a block, it reaches finality under Dooomslug, meaning that no forks can alter the confirmed state.

3. Epochs and Rotation:

- Validators are rotated in epochs to ensure fairness and decentralization. Epochs are intervals in which validators are reshuffled, and new block proposers are selected, ensuring a balance between performance and decentralization.

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

yearn.finance is present on the following networks: Arbitrum, Avalanche, Binance Smart Chain, Ethereum, Fantom, Gnosis Chain, Huobi, Near Protocol, Solana.

Transactions on Arbitrum are subject to fees paid in ETH. The total fee generally consists of a Layer 2 execution component, which covers the computational resources required to process the transaction, and a parent-chain data component, which reflects the cost of publishing compressed transaction data to Ethereum. The amount payable therefore depends on the computational complexity of the transaction, the volume and compressibility of its data and the prevailing cost of data publication on Ethereum. Participants that submit or challenge state assertions under the dispute protocol must provide economic bonds. These bonds are intended to discourage incorrect assertions and compensate successful participants in the dispute process. Withdrawals through the canonical bridge become executable after the relevant Layer 2 state has been confirmed and the applicable challenge period has elapsed.

The Avalanche C-Chain is secured economically through the native AVAX token. Validator incentives are based primarily on staking rewards, not on redistribution of C-Chain transaction fees. A fixed

amount of 360 million AVAX was minted at genesis, while additional AVAX is minted over time as validator rewards, subject to Avalanche's capped token supply framework. Validator rewards are paid at the end of the staking period and are determined by factors such as the validator's stake and compliance with staking conditions. Unlike some proof-of-stake systems, the Avalanche Primary Network does not use slashing of bonded principal as an ordinary penalty mechanism. Instead, the main protocol-level economic consequence for underperformance is the loss of reward eligibility. Where a validator fails to satisfy the applicable uptime requirement during its staking term, that validator does not receive the corresponding staking reward. Transaction fees apply on the C-Chain for transfers and smart-contract execution. The fee model follows EIP-1559 logic, meaning that transactions are priced through a dynamic base fee mechanism. In contrast to Ethereum's validator tip model, C-Chain transaction fees are burned rather than distributed to validators. This means that C-Chain fees function as a supply-reduction mechanism and are intended in part to offset inflation arising from the minting of validator rewards. In addition to ordinary transaction and smart-contract execution fees, Avalanche documentation also recognises protocol fees in connection with other network operations on other chains of the Primary Network, such as certain import or export operations and staking-related actions. However, for the C-Chain itself, the core applicable fee category is the gas fee for transaction inclusion and contract execution, and those fees are handled through the protocol burn mechanism rather than paid to validators or a treasury.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

Fantom's incentive model promotes network security through staking rewards, transaction fees, and delegation options, encouraging broad participation.

Incentive Mechanisms:

1. Staking Rewards for Validators:

- Earning Rewards in FTM: Validators who participate in the consensus process earn rewards in FTM tokens, proportional to the amount they have staked. This incentivizes validators to actively secure the network.
- Dynamic Staking Rate: Fantom's staking reward rate is dynamic, adjusting based on total FTM staked across the network. As more FTM is staked, individual rewards may decrease, maintaining a balanced reward structure that supports long-term network security.

2. Delegation for Token Holders:

- Delegated Staking: Users who do not operate validator nodes can delegate their FTM tokens to validators. In return, they share in the staking rewards, encouraging wider participation in securing the network.

Applicable Fees:

- Transaction Fees in FTM: Users pay transaction fees in FTM tokens. The network's high throughput and DAG structure keep fees low, making Fantom ideal for decentralized applications (dApps) requiring frequent transactions.
- Efficient Fee Model: The low fees and scalability of the network make it cost-effective for users, fostering a favorable environment for high-volume applications.

The Gnosis Chain's incentive and fee models encourage both validator participation and network accessibility, using a dual-token system to maintain low transaction costs and effective staking rewards.

Incentive Mechanisms:

- Staking Rewards for Validators GNO Rewards: Validators earn staking rewards in GNO tokens for their participation in consensus and securing the network.
- Delegation Model: GNO holders who do not operate validator nodes can delegate their GNO tokens to validators, allowing them to share in staking rewards and encouraging broader participation in network security.
- Dual-Token Model GNO: Used for staking, governance, and validator rewards, GNO aligns long-term network security incentives with token holders' economic interests.
- xDai: Serves as the primary transaction currency, providing stable and low-cost transactions. The use of a stable token (xDai) for fees minimizes volatility and offers predictable costs for users and developers.

Applicable Fees:

Transaction Fees in xDai Users pay transaction fees in xDai, the stable fee token, making costs affordable and predictable. This model is especially suited for high-frequency applications and dApps where low transaction fees are essential. xDai transaction fees are redistributed to validators as part of their compensation, aligning their rewards with network activity. Delegated Staking Rewards Through delegated staking, GNO holders can earn a share of staking rewards by delegating their tokens to active validators, promoting user participation in network security without requiring direct involvement in consensus operations.

The Huobi Eco Chain (HECO) blockchain employs a Hybrid-Proof-of-Stake (HPoS) consensus mechanism, combining elements of Proof-of-Stake (PoS) to enhance transaction efficiency and scalability.

Incentive Mechanism:

1. Validator Rewards:

Validators are selected based on their stake in the network. They process transactions and add blocks to the blockchain. Validators receive rewards in the form of transaction fees for their role in maintaining the blockchain's integrity.

2. Staking Participation:

Users can stake Huobi Token (HT) to become validators or delegate their tokens to existing validators. Staking helps secure the network and, in return, participants receive a portion of the transaction fees as rewards.

Applicable Fees:

1. Transaction Fees (Gas Fees):

Users pay gas fees in HT tokens to execute transactions and interact with smart contracts on the HECO network. These fees compensate validators for processing and validating transactions.

2. Smart Contract Execution Fees:

Deploying and interacting with smart contracts incur additional fees, which are also paid in HT tokens. These fees cover the computational resources required to execute contract code.

NEAR Protocol employs several economic mechanisms to secure the network and incentivize participation.

Incentive Mechanisms to Secure Transactions:

1. Staking Rewards:

Validators and delegators secure the network by staking NEAR tokens. Validators earn around 5% annual inflation, with 90% of newly minted tokens distributed as staking rewards. Validators propose blocks, validate transactions, and receive a share of these rewards based on their staked tokens. Delegators earn rewards proportional to their delegation, encouraging broad participation.

2. Delegation:

Token holders can delegate their NEAR tokens to validators to increase the validator's stake and improve the chances of being selected to validate transactions. Delegators share in the validator's rewards based on their delegated tokens, incentivizing users to support reliable validators.

3. Slashing and Economic Penalties:

Validators face penalties for malicious behavior, such as failing to validate correctly or acting dishonestly. The slashing mechanism enforces security by deducting a portion of their staked tokens, ensuring validators follow the network's best interests.

4. Epoch Rotation and Validator Selection:

Validators are rotated regularly during epochs to ensure fairness and prevent centralization. Each epoch reshuffles validators, allowing the protocol to balance decentralization with performance.

Fees on the NEAR Blockchain:

1. Transaction Fees:

Users pay fees in NEAR tokens for transaction processing, which are burned to reduce the total circulating supply, introducing a potential deflationary effect over time. Validators also receive a portion of transaction fees as additional rewards, providing an ongoing incentive for network maintenance.

2. Storage Fees:

NEAR Protocol charges storage fees based on the amount of blockchain storage consumed by accounts, contracts, and data. This requires users to hold NEAR tokens as a deposit proportional to their storage usage, ensuring the efficient use of network resources.

3. Redistribution and Burning:

A portion of the transaction fees (burned NEAR tokens) reduces the overall supply, while the rest is distributed to validators as compensation for their work. The burning mechanism helps maintain long-term economic sustainability and potential value appreciation for NEAR holders.

4. Reserve Requirement:

Users must maintain a minimum account balance and reserves for data storage, encouraging efficient use of resources and preventing spam attacks.

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- **Staking Rewards:** Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.
- **Transaction Fees:** Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.

2. Delegators:

- **Delegated Staking:** Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.

3. Economic Security:

- **Slashing:** Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
- **Opportunity Cost:** By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.

2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.

3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.

4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) arbitrum, avalanche, binance_smart_chain, ethereum, fantom, gnosis_chain, huobi, near_protocol, solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for LayerZero

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	LayerZero	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	468.37614	kWh/a

Qualitative information

S.4 Consensus Mechanism

LayerZero is present on the following networks: Arbitrum, Ethereum.

Arbitrum is an optimistic rollup that processes transactions on a Layer 2 network and relies on Ethereum for data availability and settlement. A sequencer orders incoming transactions, executes them and publishes compressed transaction batches to Ethereum. Arbitrum nodes can independently reconstruct and verify the resulting Layer 2 state using the transaction data published on the parent chain. Validators submit assertions representing the state of the network. Under the BoLD dispute protocol, conflicting or incorrect assertions may be challenged and resolved through an interactive fraud-proof process on Ethereum. Once an assertion has been confirmed and the applicable challenge process has been completed, the corresponding Layer 2 state is accepted for settlement purposes.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in

certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

LayerZero is present on the following networks: Arbitrum, Ethereum.

Transactions on Arbitrum are subject to fees paid in ETH. The total fee generally consists of a Layer 2 execution component, which covers the computational resources required to process the transaction, and a parent-chain data component, which reflects the cost of publishing compressed transaction data to Ethereum. The amount payable therefore depends on the computational complexity of the transaction, the volume and compressibility of its data and the prevailing cost of data publication on Ethereum. Participants that submit or challenge state assertions under the dispute protocol must provide economic bonds. These bonds are intended to discourage incorrect assertions and compensate successful participants in the dispute process. Withdrawals through the canonical bridge become executable after the relevant Layer 2 state has been confirmed and the applicable challenge period has elapsed.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) arbitrum, ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for SuperVerse

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	SuperVerse	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	464.63653	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Wootrade Network

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Wootrade Network	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	456.73382	kWh/a

Qualitative information

S.4 Consensus Mechanism

Wootrade Network is present on the following networks: Arbitrum, Avalanche, Binance Smart Chain, Ethereum, Near Protocol, Polygon.

Arbitrum is an optimistic rollup that processes transactions on a Layer 2 network and relies on Ethereum for data availability and settlement. A sequencer orders incoming transactions, executes them and publishes compressed transaction batches to Ethereum. Arbitrum nodes can independently reconstruct and verify the resulting Layer 2 state using the transaction data published on the parent chain. Validators submit assertions representing the state of the network. Under the BoLD dispute protocol, conflicting or incorrect assertions may be challenged and resolved through an interactive fraud-proof process on Ethereum. Once an assertion has been confirmed and the applicable challenge process has been completed, the corresponding Layer 2 state is accepted for settlement purposes.

The Avalanche C-Chain uses the Snowman++ consensus mechanism, which is Avalanche's consensus model for linear blockchains and is implemented through the ProposerVM wrapper. Under this model, validators repeatedly query a small random subset of other validators and converge on a preferred block once the required confidence thresholds are met. Only Primary Network validators are entitled to validate the C-Chain. To participate as a validator on Avalanche mainnet, a node must stake a minimum number of token. Token holders may also participate indirectly by delegating an existing validator. Validator identity and admission to staking require the relevant staking credentials, including BLS proofs of possession under the current staking framework. For block production,

Snowman++ uses stake-weighted proposer windows. Through the ProposerVM, block-building opportunities are assigned to proposers in 5-second windows, after which block production may fall back more broadly to validators if necessary. This mechanism is intended to regulate block production while preserving network liveness. Consensus voting itself remains based on repeated sub-sampled polling rather than fixed validator committees. Avalanche documentation describes the finality model as sub-second and treated by the protocol as final and irreversible once accepted, while noting that safety is probabilistic in the formal sense because the probability of conflicting acceptance can be reduced to an arbitrarily low level through the protocol parameters. The protocol does not rely on slashing of staked principal. Instead, validator reward eligibility depends on compliance with protocol conditions, including uptime requirements.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum’s consensus mechanism and Layer 2 functionality.

The NEAR Protocol uses a unique consensus mechanism combining Proof of Stake (PoS) and a novel approach called Dooomslug, which enables high efficiency, fast transaction processing, and secure finality in its operations.

Core Concepts:

1. Dooomslug and Proof of Stake:

- NEAR's consensus mechanism primarily revolves around PoS, where validators stake NEAR tokens to participate in securing the network. However, NEAR's implementation is enhanced with the Dooomslug protocol.

- Doomsbug allows the network to achieve fast block finality by requiring blocks to be confirmed in two stages. Validators propose blocks in the first step, and finalization occurs when two-thirds of validators approve the block, ensuring rapid transaction confirmation.
- 2. Sharding with Nightshade:
 - NEAR uses a dynamic sharding technique called Nightshade. This method splits the network into multiple shards, enabling parallel processing of transactions across the network, thus significantly increasing throughput. Each shard processes a portion of transactions, and the outcomes are merged into a single "snapshot" block.
 - This sharding approach ensures scalability, allowing the network to grow and handle increasing demand efficiently.

Consensus Process:

1. Validator Selection:
 - Validators are selected to propose and validate blocks based on the amount of NEAR tokens staked. This selection process is designed to ensure that only validators with significant stakes and community trust participate in securing the network.
2. Transaction Finality:
 - NEAR achieves transaction finality through its PoS-based system, where validators vote on blocks. Once two-thirds of validators approve a block, it reaches finality under Doomsbug, meaning that no forks can alter the confirmed state.
3. Epochs and Rotation:
 - Validators are rotated in epochs to ensure fairness and decentralization. Epochs are intervals in which validators are reshuffled, and new block proposers are selected, ensuring a balance between performance and decentralization.

Polygon PoS is an EVM-compatible sidechain that operates with a Proof-of-Stake consensus mechanism and periodically submits checkpoints to the Ethereum mainnet. The network maintains its own validator set and processes transactions independently from Ethereum, while using Ethereum smart contracts for staking-related functions and checkpoint verification. Polygon PoS therefore uses Ethereum as a staking and checkpointing layer, but does not rely on Ethereum for full transaction execution or transaction data availability. The Polygon-side architecture consists of two primary node layers. The Bor layer is responsible for transaction execution and block production. The Heimdall layer is responsible for validator coordination, staking-related monitoring, consensus, and checkpoint finalisation. Heimdall is based on Cosmos SDK and CometBFT and aggregates blocks produced by Bor into periodic Merkle-root checkpoints that are submitted to smart contracts on the Ethereum mainnet. Validators participate in the network by staking POL tokens. Token holders may delegate POL tokens to validators, contributing to the validator's effective stake and participating indirectly in network validation. Following the Rio upgrade, Polygon PoS uses a Validator-Elected Block Producer model. Under this model, validators elect the block producer or block producers for a span, rather than relying on the previous stake-weighted selection model for multiple block producers over shorter intervals. Block production and transaction execution are performed on the Bor layer, while Heimdall validators coordinate consensus and checkpoint finalisation. At regular intervals, Heimdall validators aggregate blocks into a Merkle root and submit the resulting checkpoint to Ethereum smart contracts. These checkpoints provide an additional verification layer and support cross-chain verification, including in the context of asset transfers between Polygon PoS and Ethereum. This design enables higher transaction throughput and lower transaction costs than the Ethereum mainnet, while maintaining a technical connection to Ethereum through staking contracts and periodic checkpointing. Polygon PoS should therefore be understood as an independent sidechain or commit-chain architecture, rather than a rollup that inherits full execution and data availability security from Ethereum.

S.5 Incentive Mechanisms and Applicable Fees

Wootrade Network is present on the following networks: Arbitrum, Avalanche, Binance Smart Chain, Ethereum, Near Protocol, Polygon.

Transactions on Arbitrum are subject to fees paid in ETH. The total fee generally consists of a Layer 2 execution component, which covers the computational resources required to process the transaction, and a parent-chain data component, which reflects the cost of publishing compressed transaction data to Ethereum. The amount payable therefore depends on the computational complexity of the transaction, the volume and compressibility of its data and the prevailing cost of data publication on Ethereum. Participants that submit or challenge state assertions under the dispute protocol must provide economic bonds. These bonds are intended to discourage incorrect assertions and compensate successful participants in the dispute process. Withdrawals through the canonical bridge become executable after the relevant Layer 2 state has been confirmed and the applicable challenge period has elapsed.

The Avalanche C-Chain is secured economically through the native AVAX token. Validator incentives are based primarily on staking rewards, not on redistribution of C-Chain transaction fees. A fixed amount of 360 million AVAX was minted at genesis, while additional AVAX is minted over time as validator rewards, subject to Avalanche's capped token supply framework. Validator rewards are paid at the end of the staking period and are determined by factors such as the validator's stake and compliance with staking conditions. Unlike some proof-of-stake systems, the Avalanche Primary Network does not use slashing of bonded principal as an ordinary penalty mechanism. Instead, the main protocol-level economic consequence for underperformance is the loss of reward eligibility. Where a validator fails to satisfy the applicable uptime requirement during its staking term, that validator does not receive the corresponding staking reward. Transaction fees apply on the C-Chain for transfers and smart-contract execution. The fee model follows EIP-1559 logic, meaning that transactions are priced through a dynamic base fee mechanism. In contrast to Ethereum's validator tip model, C-Chain transaction fees are burned rather than distributed to validators. This means that C-Chain fees function as a supply-reduction mechanism and are intended in part to offset inflation arising from the minting of validator rewards. In addition to ordinary transaction and smart-contract execution fees, Avalanche documentation also recognises protocol fees in connection with other network operations on other chains of the Primary Network, such as certain import or export operations and staking-related actions. However, for the C-Chain itself, the core applicable fee category is the gas fee for transaction inclusion and contract execution, and those fees are handled through the protocol burn mechanism rather than paid to validators or a treasury.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the

validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

NEAR Protocol employs several economic mechanisms to secure the network and incentivize participation.

Incentive Mechanisms to Secure Transactions:

1. Staking Rewards:

Validators and delegators secure the network by staking NEAR tokens. Validators earn around 5% annual inflation, with 90% of newly minted tokens distributed as staking rewards. Validators propose blocks, validate transactions, and receive a share of these rewards based on their staked tokens. Delegators earn rewards proportional to their delegation, encouraging broad participation.

2. Delegation:

Token holders can delegate their NEAR tokens to validators to increase the validator's stake and improve the chances of being selected to validate transactions. Delegators share in the validator's rewards based on their delegated tokens, incentivizing users to support reliable validators.

3. Slashing and Economic Penalties:

Validators face penalties for malicious behavior, such as failing to validate correctly or acting dishonestly. The slashing mechanism enforces security by deducting a portion of their staked tokens, ensuring validators follow the network's best interests.

4. Epoch Rotation and Validator Selection:

Validators are rotated regularly during epochs to ensure fairness and prevent centralization. Each epoch reshuffles validators, allowing the protocol to balance decentralization with performance.

Fees on the NEAR Blockchain:

1. Transaction Fees:

Users pay fees in NEAR tokens for transaction processing, which are burned to reduce the total circulating supply, introducing a potential deflationary effect over time. Validators also receive a portion of transaction fees as additional rewards, providing an ongoing incentive for network maintenance.

2. Storage Fees:

NEAR Protocol charges storage fees based on the amount of blockchain storage consumed by accounts, contracts, and data. This requires users to hold NEAR tokens as a deposit proportional to their storage usage, ensuring the efficient use of network resources.

3. Redistribution and Burning:

A portion of the transaction fees (burned NEAR tokens) reduces the overall supply, while the rest is distributed to validators as compensation for their work. The burning mechanism helps maintain long-term economic sustainability and potential value appreciation for NEAR holders.

4. Reserve Requirement:

Users must maintain a minimum account balance and reserves for data storage, encouraging efficient use of resources and preventing spam attacks.

Polygon PoS uses economic incentives to support validator participation, transaction processing, and network operation. Validators stake POL tokens and participate in block production, validation, voting, and checkpoint finalisation. Validators may receive rewards connected to their participation in the network, including rewards linked to validation activities and transaction-fee allocation, depending on the applicable protocol rules. Token holders who do not operate validator infrastructure may delegate POL tokens to validators. Delegators may receive a share of rewards attributable to the validator to whom they delegate, subject to the validator's commission and applicable protocol rules. Delegation increases the validator's effective stake and may affect its role in the validator set and related network processes. Following the Rio upgrade, Polygon PoS introduced a Validator-Elected Block Producer model, under which validators elect the block producer or block producers for a span. Publicly described protocol changes associated with this model also provide for redistribution of fees, including maximum extractable value-related fees where applicable, to non-producing validators under the relevant protocol design. This changes the incentive structure from the previous model in which block production selection was more directly described by reference to stake-weighted producer selection. Polygon PoS includes protocol specifications for validator penalties, including slashing-related concepts. Transactions on Polygon PoS require payment of network fees in POL. Fees apply to ordinary token transfers, smart contract deployment, and smart contract interaction. The amount of fees may vary depending on network demand, transaction complexity, and computational resources required. Because Polygon PoS processes transactions independently from Ethereum, transaction fees are generally designed to be lower than equivalent activity on the Ethereum mainnet, although actual fees may change according to network conditions and protocol parameters.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) arbitrum, avalanche, binance_smart_chain, ethereum, near_protocol, polygon is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The

mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Gala

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Gala	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	455.48986	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Spark

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Spark	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	455.36635	kWh/a

Qualitative information

S.4 Consensus Mechanism

Spark is present on the following networks: Base, Binance Smart Chain, Ethereum.

Base does not operate its own consensus mechanism or decentralised validator set comparable to a Layer-1 blockchain. As an optimistic rollup Layer-2 network, Base relies on Ethereum's Proof-of-Stake consensus for the finality and settlement of data and state commitments posted to Ethereum Layer 1. Transaction ordering on Base is performed by a sequencer, currently operated by Coinbase. This sequencing function provides transaction ordering and execution on the Layer-2 network but does not constitute a decentralised consensus mechanism. The validity of Layer-2 state transitions is supported by an optimistic fault-proof mechanism, under which incorrect state commitments may be challenged during the applicable dispute period. Accordingly, Base's security model depends on Ethereum Layer 1 for settlement and finality, while Layer-2 transaction ordering remains dependent on the sequencer.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 "Cabinet" validators and 24 "Candidate" validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by

validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Spark is present on the following networks: Base, Binance Smart Chain, Ethereum.

Base does not have a native protocol token and does not operate a staking, validator reward or token issuance mechanism. Transaction fees on Base are paid in ETH. The economic incentives within the network are primarily related to transaction processing and network security. Transactions are executed on Base and periodically submitted to Ethereum Layer 1 in batches. As the cost of a Layer-1 submission is shared among multiple Layer-2 transactions, the average transaction cost per transaction may be lower than executing the same transactions directly on Ethereum Layer 1. The integrity of withdrawals from Base is supported by a fault-proof mechanism. Withdrawals are subject to a dispute period during which participants may challenge incorrect state commitments. The dispute process incorporates economic incentives intended to encourage honest behaviour and discourage invalid claims.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The

staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) base, binance_smart_chain, ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for 0x Protocol Token

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	0x Protocol Token	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	452.46512	kWh/a

Qualitative information

S.4 Consensus Mechanism

0x Protocol Token is present on the following networks: Avalanche, Ethereum, Gnosis Chain, Solana.

The Avalanche C-Chain uses the Snowman++ consensus mechanism, which is Avalanche's consensus model for linear blockchains and is implemented through the ProposerVM wrapper. Under this model, validators repeatedly query a small random subset of other validators and converge on a preferred block once the required confidence thresholds are met. Only Primary Network validators are entitled to validate the C-Chain. To participate as a validator on Avalanche mainnet, a node must stake a minimum number of token. Token holders may also participate indirectly by delegating an existing validator. Validator identity and admission to staking require the relevant staking credentials, including BLS proofs of possession under the current staking framework. For block production, Snowman++ uses stake-weighted proposer windows. Through the ProposerVM, block-building opportunities are assigned to proposers in 5-second windows, after which block production may fall back more broadly to validators if necessary. This mechanism is intended to regulate block production while preserving network liveness. Consensus voting itself remains based on repeated sub-sampled polling rather than fixed validator committees. Avalanche documentation describes the finality model as sub-second and treated by the protocol as final and irreversible once accepted, while noting that safety is probabilistic in the formal sense because the probability of conflicting acceptance can be reduced to an arbitrarily low level through the protocol parameters. The protocol does not rely on slashing of staked principal. Instead, validator reward eligibility depends on compliance with protocol conditions, including uptime requirements.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

Gnosis Chain – Consensus Mechanism Gnosis Chain employs a dual-layer structure to balance scalability and security, using Proof of Stake (PoS) for its core consensus and transaction finality.

Core Components:

- **Two-Layer Structure** Layer 1: Gnosis Beacon Chain The Gnosis Beacon Chain operates on a Proof of Stake (PoS) mechanism, acting as the security and consensus backbone. Validators stake GNO tokens on the Beacon Chain and validate transactions, ensuring network security and finality.
- **Layer 2: Gnosis xDai Chain** processes transactions and dApp interactions, providing high-speed, low-cost transactions. Layer 2 transaction data is finalized on the Gnosis Beacon Chain, creating an integrated framework where Layer 1 ensures security and finality, and Layer 2 enhances scalability.
- Validator Role and Staking** Validators on the Gnosis Beacon Chain stake GNO tokens and participate in consensus by validating blocks. This setup ensures that validators have an economic interest in maintaining the security and integrity of both the Beacon Chain (Layer 1) and the xDai Chain (Layer 2).
- Cross-Layer Security** Transactions on Layer 2 are ultimately finalized on Layer 1, providing security and finality to all activities on the Gnosis Chain. This architecture allows Gnosis Chain to combine the speed and cost efficiency of Layer 2 with the security guarantees of a PoS-secured Layer 1, making it suitable for both high-frequency applications and secure asset management.

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- **Time-Stamped Transactions:** PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- **Verifiable Delay Function:** PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- **Validator Selection:** Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- **Delegation:** Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

0x Protocol Token is present on the following networks: Avalanche, Ethereum, Gnosis Chain, Solana.

The Avalanche C-Chain is secured economically through the native AVAX token. Validator incentives are based primarily on staking rewards, not on redistribution of C-Chain transaction fees. A fixed amount of 360 million AVAX was minted at genesis, while additional AVAX is minted over time as validator rewards, subject to Avalanche's capped token supply framework. Validator rewards are paid at the end of the staking period and are determined by factors such as the validator's stake and compliance with staking conditions. Unlike some proof-of-stake systems, the Avalanche Primary Network does not use slashing of bonded principal as an ordinary penalty mechanism. Instead, the main protocol-level economic consequence for underperformance is the loss of reward eligibility.

Where a validator fails to satisfy the applicable uptime requirement during its staking term, that validator does not receive the corresponding staking reward. Transaction fees apply on the C-Chain for transfers and smart-contract execution. The fee model follows EIP-1559 logic, meaning that transactions are priced through a dynamic base fee mechanism. In contrast to Ethereum's validator tip model, C-Chain transaction fees are burned rather than distributed to validators. This means that C-Chain fees function as a supply-reduction mechanism and are intended in part to offset inflation arising from the minting of validator rewards. In addition to ordinary transaction and smart-contract execution fees, Avalanche documentation also recognises protocol fees in connection with other network operations on other chains of the Primary Network, such as certain import or export operations and staking-related actions. However, for the C-Chain itself, the core applicable fee category is the gas fee for transaction inclusion and contract execution, and those fees are handled through the protocol burn mechanism rather than paid to validators or a treasury.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

The Gnosis Chain's incentive and fee models encourage both validator participation and network accessibility, using a dual-token system to maintain low transaction costs and effective staking rewards.

Incentive Mechanisms:

- Staking Rewards for Validators GNO Rewards: Validators earn staking rewards in GNO tokens for their participation in consensus and securing the network.
- Delegation Model: GNO holders who do not operate validator nodes can delegate their GNO tokens to validators, allowing them to share in staking rewards and encouraging broader participation in network security.
- Dual-Token Model GNO: Used for staking, governance, and validator rewards, GNO aligns long-term network security incentives with token holders' economic interests.
- xDai: Serves as the primary transaction currency, providing stable and low-cost transactions. The use of a stable token (xDai) for fees minimizes volatility and offers predictable costs for users and developers.

Applicable Fees:

Transaction Fees in xDai Users pay transaction fees in xDai, the stable fee token, making costs affordable and predictable. This model is especially suited for high-frequency applications and dApps where low transaction fees are essential. xDai transaction fees are redistributed to validators as part of their compensation, aligning their rewards with network activity. Delegated Staking Rewards Through delegated staking, GNO holders can earn a share of staking rewards by delegating their tokens to active validators, promoting user participation in network security without requiring direct involvement in consensus operations.

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.
- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.

2. Delegators:

- Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.

3. Economic Security:

- Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
- Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.

2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.

3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.

4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) avalanche, ethereum, gnosis_chain, solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy

consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for VeThor

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	VeThor	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	439.40160	kWh/a

Qualitative information

S.4 Consensus Mechanism

VeChain employs a Proof of Authority (PoA) 2.0 consensus mechanism, where trusted Authority Masternodes are responsible for validating transactions, providing both security and efficiency for enterprise applications.

Core Components of VeChain's Consensus:

1. Proof of Authority (PoA) 2.0:

Trusted Authority Masternodes: VeChain's PoA 2.0 relies on a set of pre-approved Authority Masternodes to validate blocks and confirm transactions. These nodes are selected based on their reputation and reliability, ensuring network integrity and trustworthiness.

2. Finality and Security:

Immediate Transaction Finality: Once a block is validated under PoA 2.0, it is final, reducing the likelihood of forks. This immediate finality enhances the security and reliability of the network, making it suitable for enterprise-grade applications.

S.5 Incentive Mechanisms and Applicable Fees

VeChain's incentive model utilizes a dual-token system to support staking, transaction processing, and economic stability, helping to ensure predictable costs for network users.

Incentive Mechanisms:

1. Dual-Token Model:

- VET (VeChain Token): VET is used primarily for value transfer and staking on the network. VET holders can stake their tokens to generate VTHO, which serves as "gas" for transactions.
- VTHO (VeThor Token): VTHO is used to pay for transaction fees, providing a buffer against fluctuations in VET's market price. This setup decouples transaction costs from VET's volatility, allowing for stable and predictable transaction fees.

2. Staking Rewards:

VET Staking to Generate VTHO: By staking VET, holders automatically generate VTHO tokens, which can be used to cover transaction costs. This staking mechanism incentivizes VET holders to participate in the network and secure its operations.

Applicable Fees:

Transaction Fees in VTHO: Transaction fees on VeChain are paid in VTHO, keeping costs stable and predictable for users regardless of VET's market price. This predictable fee model makes the network appealing for enterprises and high-volume applications.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) vechain is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for ZIGChain

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	ZIGChain	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	439.14437	kWh/a

Qualitative information

S.4 Consensus Mechanism

ZIGChain is present on the following networks: Binance Smart Chain, Ethereum, Polygon, Solana.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon

Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

Polygon PoS is an EVM-compatible sidechain that operates with a Proof-of-Stake consensus mechanism and periodically submits checkpoints to the Ethereum mainnet. The network maintains its own validator set and processes transactions independently from Ethereum, while using Ethereum smart contracts for staking-related functions and checkpoint verification. Polygon PoS therefore uses Ethereum as a staking and checkpointing layer, but does not rely on Ethereum for full transaction execution or transaction data availability. The Polygon-side architecture consists of two primary node layers. The Bor layer is responsible for transaction execution and block production. The Heimdall layer is responsible for validator coordination, staking-related monitoring, consensus, and checkpoint finalisation. Heimdall is based on Cosmos SDK and CometBFT and aggregates blocks produced by Bor into periodic Merkle-root checkpoints that are submitted to smart contracts on the Ethereum mainnet. Validators participate in the network by staking POL tokens. Token holders may delegate POL tokens to validators, contributing to the validator's effective stake and participating indirectly in network validation. Following the Rio upgrade, Polygon PoS uses a Validator-Elected Block Producer model. Under this model, validators elect the block producer or block producers for a span, rather than relying on the previous stake-weighted selection model for multiple block producers over shorter intervals. Block production and transaction execution are performed on the Bor layer, while Heimdall validators coordinate consensus and checkpoint finalisation. At regular intervals, Heimdall validators aggregate blocks into a Merkle root and submit the resulting checkpoint to Ethereum smart contracts. These checkpoints provide an additional verification layer and support cross-chain verification, including in the context of asset transfers between Polygon PoS and Ethereum. This design enables higher transaction throughput and lower transaction costs than the Ethereum mainnet, while maintaining a technical connection to Ethereum through staking contracts and periodic checkpointing. Polygon PoS should therefore be understood as an independent sidechain or commit-chain architecture, rather than a rollup that inherits full execution and data availability security from Ethereum.

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.

- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

ZIGChain is present on the following networks: Binance Smart Chain, Ethereum, Polygon, Solana.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated

for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

Polygon PoS uses economic incentives to support validator participation, transaction processing, and network operation. Validators stake POL tokens and participate in block production, validation, voting, and checkpoint finalisation. Validators may receive rewards connected to their participation in the network, including rewards linked to validation activities and transaction-fee allocation, depending on the applicable protocol rules. Token holders who do not operate validator infrastructure may delegate POL tokens to validators. Delegators may receive a share of rewards attributable to the validator to whom they delegate, subject to the validator's commission and applicable protocol rules. Delegation increases the validator's effective stake and may affect its role in the validator set and related network processes. Following the Rio upgrade, Polygon PoS introduced a Validator-Elected Block Producer model, under which validators elect the block producer or block producers for a span. Publicly described protocol changes associated with this model also provide for redistribution of fees, including maximum extractable value-related fees where applicable, to non-producing validators under the relevant protocol design. This changes the incentive structure from the previous model in which block production selection was more directly described by reference to stake-weighted producer selection. Polygon PoS includes protocol specifications for

validator penalties, including slashing-related concepts. Transactions on Polygon PoS require payment of network fees in POL. Fees apply to ordinary token transfers, smart contract deployment, and smart contract interaction. The amount of fees may vary depending on network demand, transaction complexity, and computational resources required. Because Polygon PoS processes transactions independently from Ethereum, transaction fees are generally designed to be lower than equivalent activity on the Ethereum mainnet, although actual fees may change according to network conditions and protocol parameters.

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.
- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.

2. Delegators:

- Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.

3. Economic Security:

- Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
- Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.

2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.

3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.

4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) binance_smart_chain, ethereum, polygon, solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Orchid

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Orchid	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	426.34815	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for SODAX

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	SODAX	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	421.79400	kWh/a

Qualitative information

S.4 Consensus Mechanism

Sonic utilizes a Proof-of-Stake (PoS) consensus mechanism integrated with a Directed Acyclic Graph (DAG) architecture to enhance scalability and efficiency. Validators are required to stake the network's native \$S tokens, with a minimum of 500,000 \$S tokens needed to operate a validator node. This substantial staking requirement ensures that validators have a significant investment in the network's integrity.

S.5 Incentive Mechanisms and Applicable Fees

Sonic's economic model is designed to incentivize active participation from both validators and developers. Validators earn rewards through a combination of block rewards and transaction fees. The block reward system employs a dynamic Annual Percentage Rate (APR) mechanism.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) sonic is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset

in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Synthetix Network

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Synthetix Network	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	418.19622	kWh/a

Qualitative information

S.4 Consensus Mechanism

Synthetix Network is present on the following networks: Avalanche, Binance Smart Chain, Ethereum, Fantom, Near Protocol, Optimism, Polygon, Solana.

The Avalanche C-Chain uses the Snowman++ consensus mechanism, which is Avalanche's consensus model for linear blockchains and is implemented through the ProposerVM wrapper. Under this model, validators repeatedly query a small random subset of other validators and converge on a preferred block once the required confidence thresholds are met. Only Primary Network validators are entitled to validate the C-Chain. To participate as a validator on Avalanche mainnet, a node must stake a minimum number of token. Token holders may also participate indirectly by delegating an existing validator. Validator identity and admission to staking require the relevant staking credentials, including BLS proofs of possession under the current staking framework. For block production, Snowman++ uses stake-weighted proposer windows. Through the ProposerVM, block-building opportunities are assigned to proposers in 5-second windows, after which block production may fall back more broadly to validators if necessary. This mechanism is intended to regulate block production while preserving network liveness. Consensus voting itself remains based on repeated sub-sampled polling rather than fixed validator committees. Avalanche documentation describes the finality model as sub-second and treated by the protocol as final and irreversible once accepted, while noting that safety is probabilistic in the formal sense because the probability of conflicting acceptance can be reduced to an arbitrarily low level through the protocol parameters. The protocol does not rely on slashing of staked principal. Instead, validator reward eligibility depends on compliance with protocol conditions, including uptime requirements.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum’s consensus mechanism and Layer 2 functionality.

Fantom operates on the Lachesis Protocol, an Asynchronous Byzantine Fault Tolerant (aBFT) consensus mechanism designed for fast, secure, and scalable transactions.

Core Components of Fantom’s Consensus:

1. Lachesis Protocol (aBFT):

- Asynchronous and Leaderless: Lachesis allows nodes to reach consensus independently without relying on a central leader, enhancing decentralization and speed.
- DAG Structure: Instead of a linear blockchain, Lachesis uses a Directed Acyclic Graph (DAG) structure, allowing multiple transactions to be processed in parallel across nodes. This structure supports high throughput, making the network suitable for applications requiring rapid transaction processing.

2. Event Blocks and Instant Finality:

- Event Blocks: Transactions are grouped into event blocks, which are validated asynchronously by multiple validators. When enough validators confirm an event block, it becomes part of the Fantom network’s history.
- Instant Finality: Transactions on Fantom achieve immediate finality, meaning they are confirmed and cannot be reversed. This property is ideal for applications requiring fast and irreversible transactions.

The NEAR Protocol uses a unique consensus mechanism combining Proof of Stake (PoS) and a novel approach called DooMLug, which enables high efficiency, fast transaction processing, and secure finality in its operations.

Core Concepts:

1. Doomslug and Proof of Stake:

- NEAR's consensus mechanism primarily revolves around PoS, where validators stake NEAR tokens to participate in securing the network. However, NEAR's implementation is enhanced with the Doomslug protocol.
- Doomslug allows the network to achieve fast block finality by requiring blocks to be confirmed in two stages. Validators propose blocks in the first step, and finalization occurs when two-thirds of validators approve the block, ensuring rapid transaction confirmation.

2. Sharding with Nightshade:

- NEAR uses a dynamic sharding technique called Nightshade. This method splits the network into multiple shards, enabling parallel processing of transactions across the network, thus significantly increasing throughput. Each shard processes a portion of transactions, and the outcomes are merged into a single "snapshot" block.
- This sharding approach ensures scalability, allowing the network to grow and handle increasing demand efficiently.

Consensus Process:

1. Validator Selection:

- Validators are selected to propose and validate blocks based on the amount of NEAR tokens staked. This selection process is designed to ensure that only validators with significant stakes and community trust participate in securing the network.

2. Transaction Finality:

- NEAR achieves transaction finality through its PoS-based system, where validators vote on blocks. Once two-thirds of validators approve a block, it reaches finality under Doomslug, meaning that no forks can alter the confirmed state.

3. Epochs and Rotation:

- Validators are rotated in epochs to ensure fairness and decentralization. Epochs are intervals in which validators are reshuffled, and new block proposers are selected, ensuring a balance between performance and decentralization.

Since Optimism is based on Ethereum, it ultimately inherits its security via the Ethereum blockchain and the proof-of-stake consensus. Within the rollup system, Optimism relies on a "fault proof" procedure. By default, transactions are assumed to be correct ("optimistic"). Only in the event of suspected faults is a fault proof initiated, in which incorrect transactions can be challenged by challengers. This model allows for high efficiency while ensuring correctness.

Polygon PoS is an EVM-compatible sidechain that operates with a Proof-of-Stake consensus mechanism and periodically submits checkpoints to the Ethereum mainnet. The network maintains its own validator set and processes transactions independently from Ethereum, while using Ethereum smart contracts for staking-related functions and checkpoint verification. Polygon PoS therefore uses Ethereum as a staking and checkpointing layer, but does not rely on Ethereum for full transaction execution or transaction data availability. The Polygon-side architecture consists of two primary node layers. The Bor layer is responsible for transaction execution and block production. The Heimdall layer is responsible for validator coordination, staking-related monitoring, consensus, and checkpoint finalisation. Heimdall is based on Cosmos SDK and CometBFT and aggregates blocks produced by Bor into periodic Merkle-root checkpoints that are submitted to smart contracts on the Ethereum mainnet. Validators participate in the network by staking POL tokens. Token holders may delegate POL tokens to validators, contributing to the validator's effective stake and participating indirectly in network validation. Following the Rio upgrade, Polygon PoS uses a Validator-Elected Block Producer model. Under this model, validators elect the block producer or block producers for

a span, rather than relying on the previous stake-weighted selection model for multiple block producers over shorter intervals. Block production and transaction execution are performed on the Bor layer, while Heimdall validators coordinate consensus and checkpoint finalisation. At regular intervals, Heimdall validators aggregate blocks into a Merkle root and submit the resulting checkpoint to Ethereum smart contracts. These checkpoints provide an additional verification layer and support cross-chain verification, including in the context of asset transfers between Polygon PoS and Ethereum. This design enables higher transaction throughput and lower transaction costs than the Ethereum mainnet, while maintaining a technical connection to Ethereum through staking contracts and periodic checkpointing. Polygon PoS should therefore be understood as an independent sidechain or commit-chain architecture, rather than a rollup that inherits full execution and data availability security from Ethereum.

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Synthetix Network is present on the following networks: Avalanche, Binance Smart Chain, Ethereum, Fantom, Near Protocol, Optimism, Polygon, Solana.

The Avalanche C-Chain is secured economically through the native AVAX token. Validator incentives are based primarily on staking rewards, not on redistribution of C-Chain transaction fees. A fixed amount of 360 million AVAX was minted at genesis, while additional AVAX is minted over time as validator rewards, subject to Avalanche's capped token supply framework. Validator rewards are paid at the end of the staking period and are determined by factors such as the validator's stake and compliance with staking conditions. Unlike some proof-of-stake systems, the Avalanche Primary Network does not use slashing of bonded principal as an ordinary penalty mechanism. Instead, the main protocol-level economic consequence for underperformance is the loss of reward eligibility. Where a validator fails to satisfy the applicable uptime requirement during its staking term, that validator does not receive the corresponding staking reward. Transaction fees apply on the C-Chain for transfers and smart-contract execution. The fee model follows EIP-1559 logic, meaning that transactions are priced through a dynamic base fee mechanism. In contrast to Ethereum's validator tip model, C-Chain transaction fees are burned rather than distributed to validators. This means that C-Chain fees function as a supply-reduction mechanism and are intended in part to offset inflation arising from the minting of validator rewards. In addition to ordinary transaction and smart-contract execution fees, Avalanche documentation also recognises protocol fees in connection with other network operations on other chains of the Primary Network, such as certain import or export operations and staking-related actions. However, for the C-Chain itself, the core applicable fee category is the gas fee for transaction inclusion and contract execution, and those fees are handled through the protocol burn mechanism rather than paid to validators or a treasury.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators.

This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

Fantom's incentive model promotes network security through staking rewards, transaction fees, and delegation options, encouraging broad participation.

Incentive Mechanisms:

1. Staking Rewards for Validators:

- Earning Rewards in FTM: Validators who participate in the consensus process earn rewards in FTM tokens, proportional to the amount they have staked. This incentivizes validators to actively secure the network.
- Dynamic Staking Rate: Fantom's staking reward rate is dynamic, adjusting based on total FTM staked across the network. As more FTM is staked, individual rewards may decrease, maintaining a balanced reward structure that supports long-term network security.

2. Delegation for Token Holders:

Delegated Staking: Users who do not operate validator nodes can delegate their FTM tokens to validators. In return, they share in the staking rewards, encouraging wider participation in securing the network.

Applicable Fees:

- Transaction Fees in FTM: Users pay transaction fees in FTM tokens. The network's high throughput and DAG structure keep fees low, making Fantom ideal for decentralized applications (dApps) requiring frequent transactions.
- Efficient Fee Model: The low fees and scalability of the network make it cost-effective for users, fostering a favorable environment for high-volume applications.

NEAR Protocol employs several economic mechanisms to secure the network and incentivize participation.

Incentive Mechanisms to Secure Transactions:

1. Staking Rewards:

Validators and delegators secure the network by staking NEAR tokens. Validators earn around 5% annual inflation, with 90% of newly minted tokens distributed as staking rewards. Validators propose blocks, validate transactions, and receive a share of these rewards based on their staked tokens. Delegators earn rewards proportional to their delegation, encouraging broad participation.

2. Delegation:

Token holders can delegate their NEAR tokens to validators to increase the validator's stake and improve the chances of being selected to validate transactions. Delegators share in the validator's rewards based on their delegated tokens, incentivizing users to support reliable validators.

3. Slashing and Economic Penalties:

Validators face penalties for malicious behavior, such as failing to validate correctly or acting dishonestly. The slashing mechanism enforces security by deducting a portion of their staked tokens, ensuring validators follow the network's best interests.

4. Epoch Rotation and Validator Selection:

Validators are rotated regularly during epochs to ensure fairness and prevent centralization. Each epoch reshuffles validators, allowing the protocol to balance decentralization with performance.

Fees on the NEAR Blockchain:

1. Transaction Fees:

Users pay fees in NEAR tokens for transaction processing, which are burned to reduce the total circulating supply, introducing a potential deflationary effect over time. Validators also receive a portion of transaction fees as additional rewards, providing an ongoing incentive for network maintenance.

2. Storage Fees:

NEAR Protocol charges storage fees based on the amount of blockchain storage consumed by accounts, contracts, and data. This requires users to hold NEAR tokens as a deposit proportional to their storage usage, ensuring the efficient use of network resources.

3. Redistribution and Burning:

A portion of the transaction fees (burned NEAR tokens) reduces the overall supply, while the rest is distributed to validators as compensation for their work. The burning mechanism helps maintain long-term economic sustainability and potential value appreciation for NEAR holders.

4. Reserve Requirement:

Users must maintain a minimum account balance and reserves for data storage, encouraging efficient use of resources and preventing spam attacks.

Optimism charges lower transaction fees than Ethereum Layer 1, as transactions are bundled in the rollup and written to the Ethereum main chain in compressed form. Gas fees on Optimism continue

to be paid in ETH. The incentive model is based on increased efficiency for users (lower fees, faster confirmation) and on the role of sequencers. Sequencers are central actors who collect, organize, and include transactions in the rollup. Their revenue comes from the gas fees they charge.

Polygon PoS uses economic incentives to support validator participation, transaction processing, and network operation. Validators stake POL tokens and participate in block production, validation, voting, and checkpoint finalisation. Validators may receive rewards connected to their participation in the network, including rewards linked to validation activities and transaction-fee allocation, depending on the applicable protocol rules. Token holders who do not operate validator infrastructure may delegate POL tokens to validators. Delegators may receive a share of rewards attributable to the validator to whom they delegate, subject to the validator's commission and applicable protocol rules. Delegation increases the validator's effective stake and may affect its role in the validator set and related network processes. Following the Rio upgrade, Polygon PoS introduced a Validator-Elected Block Producer model, under which validators elect the block producer or block producers for a span. Publicly described protocol changes associated with this model also provide for redistribution of fees, including maximum extractable value-related fees where applicable, to non-producing validators under the relevant protocol design. This changes the incentive structure from the previous model in which block production selection was more directly described by reference to stake-weighted producer selection. Polygon PoS includes protocol specifications for validator penalties, including slashing-related concepts. Transactions on Polygon PoS require payment of network fees in POL. Fees apply to ordinary token transfers, smart contract deployment, and smart contract interaction. The amount of fees may vary depending on network demand, transaction complexity, and computational resources required. Because Polygon PoS processes transactions independently from Ethereum, transaction fees are generally designed to be lower than equivalent activity on the Ethereum mainnet, although actual fees may change according to network conditions and protocol parameters.

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.
- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.

2. Delegators:

- Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.

3. Economic Security:

- Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
- Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties. Fees Applicable on the Solana Blockchain

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.

2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.

3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.

4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) avalanche, binance_smart_chain, ethereum, fantom, near_protocol, optimism, polygon, solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for JasmyCoin

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	JasmyCoin	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	413.72717	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for NYM

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	NYM	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	412.94722	kWh/a

Qualitative information

S.4 Consensus Mechanism

NYM is present on the following networks: Ethereum, Osmosis.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

Osmosis operates on a Proof of Stake (PoS) consensus mechanism, leveraging the Cosmos SDK and Tendermint Core to provide secure, decentralized, and scalable transaction processing.

Core Components:

- Proof of Stake (PoS): Validators are chosen based on the amount of OSMO tokens they stake or are delegated by other token holders. Validators are responsible for validating transactions, producing blocks, and maintaining network security.
- Cosmos SDK and Tendermint Core: Osmosis uses Tendermint Core for Byzantine Fault Tolerant (BFT) consensus, ensuring fast finality and resistance to attacks as long as less than one-third of validators are malicious.
- Decentralized Governance: OSMO token holders can participate in governance by voting on protocol upgrades and network parameters, fostering a community-driven approach to network development.

S.5 Incentive Mechanisms and Applicable Fees

NYM is present on the following networks: Ethereum, Osmosis.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

Osmosis incentivizes validators, delegators, and liquidity providers through a combination of staking rewards, transaction fees, and liquidity incentives.

Incentive Mechanisms:

- Validator Rewards: Validators earn rewards from transaction fees and block rewards, distributed in OSMO tokens, for their role in securing the network and processing transactions. Delegators who stake their OSMO tokens with validators receive a share of these rewards.
- Liquidity Provider Rewards: Users providing liquidity to Osmosis pools earn swap fees and may receive additional incentives in the form of OSMO tokens to encourage liquidity provision.
- Superfluid Staking: Liquidity providers can participate in superfluid staking, staking a portion of their OSMO tokens within liquidity pools. This mechanism allows users to earn staking rewards while maintaining liquidity in the pools

Applicable Fees:

Transaction Fees: Users pay transaction fees in OSMO tokens for network activities, including swaps, staking, and governance participation. These fees are distributed to validators and delegators, incentivizing their continued participation and support for network security.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum, osmosis is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



StorjToken

STORJ | 3W1DV4L6C

Quantitative information

Quantitative sustainability indicators for StorjToken

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	StorjToken	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	411.45823	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Optimism

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Optimism	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	403.64805	kWh/a

Qualitative information

S.4 Consensus Mechanism

Since Optimism is based on Ethereum, it ultimately inherits its security via the Ethereum blockchain and the proof-of-stake consensus. Within the rollup system, Optimism relies on a “fault proof” procedure. By default, transactions are assumed to be correct (“optimistic”). Only in the event of suspected faults is a fault proof initiated, in which incorrect transactions can be challenged by challengers. This model allows for high efficiency while ensuring correctness.

S.5 Incentive Mechanisms and Applicable Fees

Optimism charges lower transaction fees than Ethereum Layer 1, as transactions are bundled in the rollup and written to the Ethereum main chain in compressed form. Gas fees on Optimism continue to be paid in ETH. The incentive model is based on increased efficiency for users (lower fees, faster confirmation) and on the role of sequencers. Sequencers are central actors who collect, organize, and include transactions in the rollup. Their revenue comes from the gas fees they charge.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) optimism is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of

the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for FLOKI

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	FLOKI	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	396.73686	kWh/a

Qualitative information

S.4 Consensus Mechanism

FLOKI is present on the following networks: Binance Smart Chain, Ethereum.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon

Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

FLOKI is present on the following networks: Binance Smart Chain, Ethereum.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to

slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) binance_smart_chain, ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Telcoin

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Telcoin	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	381.88812	kWh/a

Qualitative information

S.4 Consensus Mechanism

Telcoin is present on the following networks: Ethereum, Polygon.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

Polygon PoS is an EVM-compatible sidechain that operates with a Proof-of-Stake consensus mechanism and periodically submits checkpoints to the Ethereum mainnet. The network maintains its own validator set and processes transactions independently from Ethereum, while using Ethereum smart contracts for staking-related functions and checkpoint verification. Polygon PoS therefore uses Ethereum as a staking and checkpointing layer, but does not rely on Ethereum for full

transaction execution or transaction data availability. The Polygon-side architecture consists of two primary node layers. The Bor layer is responsible for transaction execution and block production. The Heimdall layer is responsible for validator coordination, staking-related monitoring, consensus, and checkpoint finalisation. Heimdall is based on Cosmos SDK and CometBFT and aggregates blocks produced by Bor into periodic Merkle-root checkpoints that are submitted to smart contracts on the Ethereum mainnet. Validators participate in the network by staking POL tokens. Token holders may delegate POL tokens to validators, contributing to the validator's effective stake and participating indirectly in network validation. Following the Rio upgrade, Polygon PoS uses a Validator-Elected Block Producer model. Under this model, validators elect the block producer or block producers for a span, rather than relying on the previous stake-weighted selection model for multiple block producers over shorter intervals. Block production and transaction execution are performed on the Bor layer, while Heimdall validators coordinate consensus and checkpoint finalisation. At regular intervals, Heimdall validators aggregate blocks into a Merkle root and submit the resulting checkpoint to Ethereum smart contracts. These checkpoints provide an additional verification layer and support cross-chain verification, including in the context of asset transfers between Polygon PoS and Ethereum. This design enables higher transaction throughput and lower transaction costs than the Ethereum mainnet, while maintaining a technical connection to Ethereum through staking contracts and periodic checkpointing. Polygon PoS should therefore be understood as an independent sidechain or commit-chain architecture, rather than a rollup that inherits full execution and data availability security from Ethereum.

S.5 Incentive Mechanisms and Applicable Fees

Telcoin is present on the following networks: Ethereum, Polygon.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

Polygon PoS uses economic incentives to support validator participation, transaction processing, and network operation. Validators stake POL tokens and participate in block production, validation, voting, and checkpoint finalisation. Validators may receive rewards connected to their participation in the network, including rewards linked to validation activities and transaction-fee allocation, depending on the applicable protocol rules. Token holders who do not operate validator infrastructure may delegate POL tokens to validators. Delegators may receive a share of rewards attributable to the validator to whom they delegate, subject to the validator's commission and applicable protocol rules. Delegation increases the validator's effective stake and may affect its role in the validator set and related network processes. Following the Rio upgrade, Polygon PoS introduced a Validator-Elected Block Producer model, under which validators elect the block producer or block producers for a span. Publicly described protocol changes associated with this model also provide for redistribution of fees, including maximum extractable value-related fees where applicable, to non-producing validators under the relevant protocol design. This changes the incentive structure

from the previous model in which block production selection was more directly described by reference to stake-weighted producer selection. Polygon PoS includes protocol specifications for validator penalties, including slashing-related concepts. Transactions on Polygon PoS require payment of network fees in POL. Fees apply to ordinary token transfers, smart contract deployment, and smart contract interaction. The amount of fees may vary depending on network demand, transaction complexity, and computational resources required. Because Polygon PoS processes transactions independently from Ethereum, transaction fees are generally designed to be lower than equivalent activity on the Ethereum mainnet, although actual fees may change according to network conditions and protocol parameters.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum, polygon is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Request Token

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Request Token	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	380.82753	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



CoW Protocol Token

COW | SF0HRQBH7

Quantitative information

Quantitative sustainability indicators for CoW Protocol Token

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	CoW Protocol Token	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	379.48034	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for BitTorrent-New

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	BitTorrent-New	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	375.91330	kWh/a

Qualitative information

S.4 Consensus Mechanism

BitTorrent-New is present on the following networks: Binance Smart Chain, Ethereum, Tron.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon

Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

The Tron blockchain operates on a Delegated Proof of Stake (DPoS) consensus mechanism, designed to improve scalability, transaction speed, and energy efficiency.

Core Components:

1. Delegated Proof of Stake (DPoS): Tron uses DPoS, where token holders vote for a group of delegates known as Super Representatives (SRs) who are responsible for validating transactions and producing new blocks on the network. Token holders can vote for SRs based on their stake in the Tron network, and the top 27 SRs (or more, depending on the protocol version) are selected to participate in the block production process. SRs take turns producing blocks, which are added to the blockchain. This is done on a rotational basis to ensure decentralization and prevent control by a small group of validators.
2. Block Production: The Super Representatives generate new blocks and confirm transactions. The Tron blockchain achieves block finality quickly, with block production occurring every 3 seconds, making it highly efficient and capable of processing thousands of transactions per second.
3. Voting and Governance: Tron's DPoS system also allows token holders to vote on important network decisions, such as protocol upgrades and changes to the system's parameters. Voting power is proportional to the amount of TRX (Tron's native token) that a user holds and chooses to stake. This provides a governance system where the community can actively participate in decision-making.
4. Super Representatives: The Super Representatives play a crucial role in maintaining the security and stability of the Tron blockchain. They are responsible for validating transactions, proposing new blocks, and ensuring the overall functionality of the network. Super Representatives are incentivized with block rewards (newly minted TRX tokens) and transaction fees for their work.

S.5 Incentive Mechanisms and Applicable Fees

BitTorrent-New is present on the following networks: Binance Smart Chain, Ethereum, Tron.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for

misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

The Tron blockchain uses a Delegated Proof of Stake (DPoS) consensus mechanism to secure its network and incentivize participation.

Incentive Mechanism:

1. Super Representatives (SRs) Rewards:

- Block Rewards: Super Representatives (SRs), who are elected by TRX holders, are rewarded for producing blocks. Each block they produce comes with a block reward in the form of TRX tokens.
- Transaction Fees: In addition to block rewards, SRs receive transaction fees for validating transactions and including them in blocks. This ensures they are incentivized to process transactions efficiently.

2. Voting and Delegation:

- TRX Staking: TRX holders can stake their tokens and vote for Super Representatives (SRs). When TRX holders vote, they delegate their voting power to SRs, which allows SRs to earn rewards in the form of newly minted TRX tokens.
- Delegator Rewards: Token holders who delegate their votes to an SR can also receive a share of the rewards. This means delegators share in the block rewards and transaction fees that the SR earns.
- Incentivizing Participation: The more tokens a user stakes, the more voting power they have, which encourages participation in governance and network security.

3. Incentive for SRs:

SRs are also incentivized to maintain the health and performance of the network. Their reputation and continued election depend on their ability to produce blocks consistently and efficiently process transactions.

Applicable Fees:

1. Transaction Fees:

- Fee Calculation: Users must pay transaction fees to have their transactions processed. The transaction fee varies based on the complexity of the transaction and the network's current demand. This is paid in TRX tokens. Transaction
- Fee Distribution: Transaction fees are distributed to Super Representatives (SRs), giving them an ongoing income to maintain and support the network.

2. Storage Fees:

Tron charges storage fees for data storage on the blockchain. This includes storing smart contracts, tokens, and other data on the network. Users are required to pay these fees in TRX tokens to store data.

3. Energy and Bandwidth:

Energy: Tron uses a resource model that allows users to access network resources like bandwidth and energy through staking. Users who stake their TRX tokens receive \energy

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) binance_smart_chain, ethereum, tron is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Virtual Protocol

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Virtual Protocol	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	369.53159	kWh/a

Qualitative information

S.4 Consensus Mechanism

Virtual Protocol is present on the following networks: Base, Ethereum, Solana.

Base does not operate its own consensus mechanism or decentralised validator set comparable to a Layer-1 blockchain. As an optimistic rollup Layer-2 network, Base relies on Ethereum's Proof-of-Stake consensus for the finality and settlement of data and state commitments posted to Ethereum Layer 1. Transaction ordering on Base is performed by a sequencer, currently operated by Coinbase. This sequencing function provides transaction ordering and execution on the Layer-2 network but does not constitute a decentralised consensus mechanism. The validity of Layer-2 state transitions is supported by an optimistic fault-proof mechanism, under which incorrect state commitments may be challenged during the applicable dispute period. Accordingly, Base's security model depends on Ethereum Layer 1 for settlement and finality, while Layer-2 transaction ordering remains dependent on the sequencer.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the

canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Virtual Protocol is present on the following networks: Base, Ethereum, Solana.

Base does not have a native protocol token and does not operate a staking, validator reward or token issuance mechanism. Transaction fees on Base are paid in ETH. The economic incentives within the network are primarily related to transaction processing and network security. Transactions are executed on Base and periodically submitted to Ethereum Layer 1 in batches. As the cost of a Layer-1 submission is shared among multiple Layer-2 transactions, the average transaction cost per transaction may be lower than executing the same transactions directly on Ethereum Layer 1. The integrity of withdrawals from Base is supported by a fault-proof mechanism. Withdrawals are subject to a dispute period during which participants may challenge incorrect state commitments. The dispute process incorporates economic incentives intended to encourage honest behaviour and discourage invalid claims.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.

- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.
- 2. Delegators:
 - Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.
- 3. Economic Security:
 - Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
 - Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.
2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.
3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.
4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) base, ethereum, solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



OFFICIAL TRUMP

TRUMP | LJDPGNXXK

Quantitative information

Quantitative sustainability indicators for OFFICIAL TRUMP

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	OFFICIAL TRUMP	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	366.06530	kWh/a

Qualitative information

S.4 Consensus Mechanism

OFFICIAL TRUMP is present on the following networks: Solana, Tron.

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

The Tron blockchain operates on a Delegated Proof of Stake (DPoS) consensus mechanism, designed to improve scalability, transaction speed, and energy efficiency.

Core Components:

1. Delegated Proof of Stake (DPoS): Tron uses DPoS, where token holders vote for a group of delegates known as Super Representatives (SRs) who are responsible for validating transactions and producing new blocks on the network. Token holders can vote for SRs based on their stake in the Tron network, and the top 27 SRs (or more, depending on the protocol version) are selected to participate in the block production process. SRs take turns producing blocks, which are added to the blockchain. This is done on a rotational basis to ensure decentralization and prevent control by a small group of validators.

2. Block Production: The Super Representatives generate new blocks and confirm transactions. The Tron blockchain achieves block finality quickly, with block production occurring every 3 seconds, making it highly efficient and capable of processing thousands of transactions per second.
3. Voting and Governance: Tron's DPoS system also allows token holders to vote on important network decisions, such as protocol upgrades and changes to the system's parameters. Voting power is proportional to the amount of TRX (Tron's native token) that a user holds and chooses to stake. This provides a governance system where the community can actively participate in decision-making.
4. Super Representatives: The Super Representatives play a crucial role in maintaining the security and stability of the Tron blockchain. They are responsible for validating transactions, proposing new blocks, and ensuring the overall functionality of the network. Super Representatives are incentivized with block rewards (newly minted TRX tokens) and transaction fees for their work.

S.5 Incentive Mechanisms and Applicable Fees

OFFICIAL TRUMP is present on the following networks: Solana, Tron.

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:
 - Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.
 - Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.
2. Delegators:
 - Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.
3. Economic Security:
 - Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
 - Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.
2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.

3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.

4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

The Tron blockchain uses a Delegated Proof of Stake (DPoS) consensus mechanism to secure its network and incentivize participation.

Incentive Mechanism:

1. Super Representatives (SRs) Rewards:

- Block Rewards: Super Representatives (SRs), who are elected by TRX holders, are rewarded for producing blocks. Each block they produce comes with a block reward in the form of TRX tokens.
- Transaction Fees: In addition to block rewards, SRs receive transaction fees for validating transactions and including them in blocks. This ensures they are incentivized to process transactions efficiently.

2. Voting and Delegation:

- TRX Staking: TRX holders can stake their tokens and vote for Super Representatives (SRs). When TRX holders vote, they delegate their voting power to SRs, which allows SRs to earn rewards in the form of newly minted TRX tokens.
- Delegator Rewards: Token holders who delegate their votes to an SR can also receive a share of the rewards. This means delegators share in the block rewards and transaction fees that the SR earns.
- Incentivizing Participation: The more tokens a user stakes, the more voting power they have, which encourages participation in governance and network security.

3. Incentive for SRs:

SRs are also incentivized to maintain the health and performance of the network. Their reputation and continued election depend on their ability to produce blocks consistently and efficiently process transactions.

Applicable Fees:

1. Transaction Fees:

- Fee Calculation: Users must pay transaction fees to have their transactions processed. The transaction fee varies based on the complexity of the transaction and the network's current demand. This is paid in TRX tokens.
- Fee Distribution: Transaction fees are distributed to Super Representatives (SRs), giving them an ongoing income to maintain and support the network.

2. Storage Fees:

Tron charges storage fees for data storage on the blockchain. This includes storing smart contracts, tokens, and other data on the network. Users are required to pay these fees in TRX tokens to store data.

3. Energy and Bandwidth:

Energy: Tron uses a resource model that allows users to access network resources like bandwidth and energy through staking. Users who stake their TRX tokens receive energy

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) solana, tron is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Trace Token

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Trace Token	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	355.65647	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



PepeCoin

PEPECOIN | 5DF819BDX

Quantitative information

Quantitative sustainability indicators for PepeCoin

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	PepeCoin	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	354.52200	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for tBTC

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	tBTC	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	345.28769	kWh/a

Qualitative information

S.4 Consensus Mechanism

tBTC is present on the following networks: Arbitrum, Base, Ethereum, Optimism, Polygon, Solana.

Arbitrum is an optimistic rollup that processes transactions on a Layer 2 network and relies on Ethereum for data availability and settlement. A sequencer orders incoming transactions, executes them and publishes compressed transaction batches to Ethereum. Arbitrum nodes can independently reconstruct and verify the resulting Layer 2 state using the transaction data published on the parent chain. Validators submit assertions representing the state of the network. Under the BoLD dispute protocol, conflicting or incorrect assertions may be challenged and resolved through an interactive fraud-proof process on Ethereum. Once an assertion has been confirmed and the applicable challenge process has been completed, the corresponding Layer 2 state is accepted for settlement purposes.

Base does not operate its own consensus mechanism or decentralised validator set comparable to a Layer-1 blockchain. As an optimistic rollup Layer-2 network, Base relies on Ethereum's Proof-of-Stake consensus for the finality and settlement of data and state commitments posted to Ethereum Layer 1. Transaction ordering on Base is performed by a sequencer, currently operated by Coinbase. This sequencing function provides transaction ordering and execution on the Layer-2 network but does not constitute a decentralised consensus mechanism. The validity of Layer-2 state transitions is supported by an optimistic fault-proof mechanism, under which incorrect state commitments may be challenged during the applicable dispute period. Accordingly, Base's security model depends on

Ethereum Layer 1 for settlement and finality, while Layer-2 transaction ordering remains dependent on the sequencer.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

Since Optimism is based on Ethereum, it ultimately inherits its security via the Ethereum blockchain and the proof-of-stake consensus. Within the rollup system, Optimism relies on a "fault proof" procedure. By default, transactions are assumed to be correct ("optimistic"). Only in the event of suspected faults is a fault proof initiated, in which incorrect transactions can be challenged by challengers. This model allows for high efficiency while ensuring correctness.

Polygon PoS is an EVM-compatible sidechain that operates with a Proof-of-Stake consensus mechanism and periodically submits checkpoints to the Ethereum mainnet. The network maintains its own validator set and processes transactions independently from Ethereum, while using Ethereum smart contracts for staking-related functions and checkpoint verification. Polygon PoS therefore uses Ethereum as a staking and checkpointing layer, but does not rely on Ethereum for full transaction execution or transaction data availability. The Polygon-side architecture consists of two primary node layers. The Bor layer is responsible for transaction execution and block production. The Heimdall layer is responsible for validator coordination, staking-related monitoring, consensus, and checkpoint finalisation. Heimdall is based on Cosmos SDK and CometBFT and aggregates blocks produced by Bor into periodic Merkle-root checkpoints that are submitted to smart contracts on the Ethereum mainnet. Validators participate in the network by staking POL tokens. Token holders may delegate POL tokens to validators, contributing to the validator's effective stake and participating indirectly in network validation. Following the Rio upgrade, Polygon PoS uses a Validator-Elected Block Producer model. Under this model, validators elect the block producer or block producers for a span, rather than relying on the previous stake-weighted selection model for multiple block producers over shorter intervals. Block production and transaction execution are performed on the Bor layer, while Heimdall validators coordinate consensus and checkpoint finalisation. At regular intervals, Heimdall validators aggregate blocks into a Merkle root and submit the resulting checkpoint to Ethereum smart contracts. These checkpoints provide an additional verification layer and support cross-chain verification, including in the context of asset transfers between Polygon PoS and Ethereum. This design enables higher transaction throughput and lower transaction costs than the Ethereum mainnet, while maintaining a technical connection to Ethereum through staking contracts and periodic checkpointing. Polygon PoS should therefore be understood as an independent sidechain or commit-chain architecture, rather than a rollup that inherits full execution and data availability security from Ethereum.

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

tBTC is present on the following networks: Arbitrum, Base, Ethereum, Optimism, Polygon, Solana.

Transactions on Arbitrum are subject to fees paid in ETH. The total fee generally consists of a Layer 2 execution component, which covers the computational resources required to process the transaction, and a parent-chain data component, which reflects the cost of publishing compressed transaction data to Ethereum. The amount payable therefore depends on the computational complexity of the transaction, the volume and compressibility of its data and the prevailing cost of data publication on Ethereum. Participants that submit or challenge state assertions under the dispute protocol must provide economic bonds. These bonds are intended to discourage incorrect assertions and compensate successful participants in the dispute process. Withdrawals through the canonical bridge become executable after the relevant Layer 2 state has been confirmed and the applicable challenge period has elapsed.

Base does not have a native protocol token and does not operate a staking, validator reward or token issuance mechanism. Transaction fees on Base are paid in ETH. The economic incentives within the network are primarily related to transaction processing and network security. Transactions are executed on Base and periodically submitted to Ethereum Layer 1 in batches. As the cost of a Layer-1 submission is shared among multiple Layer-2 transactions, the average transaction cost per transaction may be lower than executing the same transactions directly on Ethereum Layer 1. The integrity of withdrawals from Base is supported by a fault-proof mechanism. Withdrawals are subject to a dispute period during which participants may challenge incorrect state commitments. The dispute process incorporates economic incentives intended to encourage honest behaviour and discourage invalid claims.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

Optimism charges lower transaction fees than Ethereum Layer 1, as transactions are bundled in the rollup and written to the Ethereum main chain in compressed form. Gas fees on Optimism continue to be paid in ETH. The incentive model is based on increased efficiency for users (lower fees, faster confirmation) and on the role of sequencers. Sequencers are central actors who collect, organize, and include transactions in the rollup. Their revenue comes from the gas fees they charge.

Polygon PoS uses economic incentives to support validator participation, transaction processing, and network operation. Validators stake POL tokens and participate in block production, validation, voting, and checkpoint finalisation. Validators may receive rewards connected to their participation in the network, including rewards linked to validation activities and transaction-fee allocation, depending on the applicable protocol rules. Token holders who do not operate validator infrastructure may delegate POL tokens to validators. Delegators may receive a share of rewards attributable to the validator to whom they delegate, subject to the validator's commission and applicable protocol rules. Delegation increases the validator's effective stake and may affect its role in the validator set and related network processes. Following the Rio upgrade, Polygon PoS introduced a Validator-Elected Block Producer model, under which validators elect the block producer or block producers for a span. Publicly described protocol changes associated with this model also provide for redistribution of fees, including maximum extractable value-related fees where applicable, to non-producing validators under the relevant protocol design. This changes the incentive structure from the previous model in which block production selection was more directly described by reference to stake-weighted producer selection. Polygon PoS includes protocol specifications for validator penalties, including slashing-related concepts. Transactions on Polygon PoS require payment of network fees in POL. Fees apply to ordinary token transfers, smart contract deployment, and smart contract interaction. The amount of fees may vary depending on network demand, transaction complexity, and computational resources required. Because Polygon PoS processes transactions independently from Ethereum, transaction fees are generally designed to be lower than equivalent activity on the Ethereum mainnet, although actual fees may change according to network conditions and protocol parameters.

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.
- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.

2. Delegators:

- Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.

3. Economic Security:

- Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
- Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties. Fees Applicable on the Solana Blockchain

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.

2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.

3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.

4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) arbitrum, base, ethereum, optimism, polygon, solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for BENQI

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	BENQI	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	344.79887	kWh/a

Qualitative information

S.4 Consensus Mechanism

The Avalanche C-Chain uses the Snowman++ consensus mechanism, which is Avalanche's consensus model for linear blockchains and is implemented through the ProposerVM wrapper. Under this model, validators repeatedly query a small random subset of other validators and converge on a preferred block once the required confidence thresholds are met. Only Primary Network validators are entitled to validate the C-Chain. To participate as a validator on Avalanche mainnet, a node must stake a minimum number of token. Token holders may also participate indirectly by delegating an existing validator. Validator identity and admission to staking require the relevant staking credentials, including BLS proofs of possession under the current staking framework. For block production, Snowman++ uses stake-weighted proposer windows. Through the ProposerVM, block-building opportunities are assigned to proposers in 5-second windows, after which block production may fall back more broadly to validators if necessary. This mechanism is intended to regulate block production while preserving network liveness. Consensus voting itself remains based on repeated sub-sampled polling rather than fixed validator committees. Avalanche documentation describes the finality model as sub-second and treated by the protocol as final and irreversible once accepted, while noting that safety is probabilistic in the formal sense because the probability of conflicting acceptance can be reduced to an arbitrarily low level through the protocol parameters. The protocol does not rely on slashing of staked principal. Instead, validator reward eligibility depends on compliance with protocol conditions, including uptime requirements.

S.5 Incentive Mechanisms and Applicable Fees

The Avalanche C-Chain is secured economically through the native AVAX token. Validator incentives are based primarily on staking rewards, not on redistribution of C-Chain transaction fees. A fixed amount of 360 million AVAX was minted at genesis, while additional AVAX is minted over time as validator rewards, subject to Avalanche's capped token supply framework. Validator rewards are paid at the end of the staking period and are determined by factors such as the validator's stake and compliance with staking conditions. Unlike some proof-of-stake systems, the Avalanche Primary Network does not use slashing of bonded principal as an ordinary penalty mechanism. Instead, the main protocol-level economic consequence for underperformance is the loss of reward eligibility. Where a validator fails to satisfy the applicable uptime requirement during its staking term, that validator does not receive the corresponding staking reward. Transaction fees apply on the C-Chain for transfers and smart-contract execution. The fee model follows EIP-1559 logic, meaning that transactions are priced through a dynamic base fee mechanism. In contrast to Ethereum's validator tip model, C-Chain transaction fees are burned rather than distributed to validators. This means that C-Chain fees function as a supply-reduction mechanism and are intended in part to offset inflation arising from the minting of validator rewards. In addition to ordinary transaction and smart-contract execution fees, Avalanche documentation also recognises protocol fees in connection with other network operations on other chains of the Primary Network, such as certain import or export operations and staking-related actions. However, for the C-Chain itself, the core applicable fee category is the gas fee for transaction inclusion and contract execution, and those fees are handled through the protocol burn mechanism rather than paid to validators or a treasury.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) avalanche is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.


BIO

BIO | TBR0XDRN8

Quantitative information

Quantitative sustainability indicators for BIO

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	BIO	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	339.95663	kWh/a

Qualitative information

S.4 Consensus Mechanism

BIO is present on the following networks: Base, Ethereum, Solana.

Base does not operate its own consensus mechanism or decentralised validator set comparable to a Layer-1 blockchain. As an optimistic rollup Layer-2 network, Base relies on Ethereum's Proof-of-Stake consensus for the finality and settlement of data and state commitments posted to Ethereum Layer 1. Transaction ordering on Base is performed by a sequencer, currently operated by Coinbase. This sequencing function provides transaction ordering and execution on the Layer-2 network but does not constitute a decentralised consensus mechanism. The validity of Layer-2 state transitions is supported by an optimistic fault-proof mechanism, under which incorrect state commitments may be challenged during the applicable dispute period. Accordingly, Base's security model depends on Ethereum Layer 1 for settlement and finality, while Layer-2 transaction ordering remains dependent on the sequencer.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the

canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

BIO is present on the following networks: Base, Ethereum, Solana.

Base does not have a native protocol token and does not operate a staking, validator reward or token issuance mechanism. Transaction fees on Base are paid in ETH. The economic incentives within the network are primarily related to transaction processing and network security. Transactions are executed on Base and periodically submitted to Ethereum Layer 1 in batches. As the cost of a Layer-1 submission is shared among multiple Layer-2 transactions, the average transaction cost per transaction may be lower than executing the same transactions directly on Ethereum Layer 1. The integrity of withdrawals from Base is supported by a fault-proof mechanism. Withdrawals are subject to a dispute period during which participants may challenge incorrect state commitments. The dispute process incorporates economic incentives intended to encourage honest behaviour and discourage invalid claims.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.

- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.
- 2. Delegators:
 - Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.
- 3. Economic Security:
 - Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
 - Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.
2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.
3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.
4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) base, ethereum, solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



GAL (migrated to Gravity - G)

GAL | /

Quantitative information

Quantitative sustainability indicators for GAL (migrated to Gravity - G)

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	GAL (migrated to Gravity - G)	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	337.56978	kWh/a

Qualitative information

S.4 Consensus Mechanism

GAL (migrated to Gravity - G) is present on the following networks: Base, Binance Smart Chain, Ethereum.

Base does not operate its own consensus mechanism or decentralised validator set comparable to a Layer-1 blockchain. As an optimistic rollup Layer-2 network, Base relies on Ethereum's Proof-of-Stake consensus for the finality and settlement of data and state commitments posted to Ethereum Layer 1. Transaction ordering on Base is performed by a sequencer, currently operated by Coinbase. This sequencing function provides transaction ordering and execution on the Layer-2 network but does not constitute a decentralised consensus mechanism. The validity of Layer-2 state transitions is supported by an optimistic fault-proof mechanism, under which incorrect state commitments may be challenged during the applicable dispute period. Accordingly, Base's security model depends on Ethereum Layer 1 for settlement and finality, while Layer-2 transaction ordering remains dependent on the sequencer.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 "Cabinet" validators and 24 "Candidate" validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may

delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

GAL (migrated to Gravity - G) is present on the following networks: Base, Binance Smart Chain, Ethereum.

Base does not have a native protocol token and does not operate a staking, validator reward or token issuance mechanism. Transaction fees on Base are paid in ETH. The economic incentives within the network are primarily related to transaction processing and network security. Transactions are executed on Base and periodically submitted to Ethereum Layer 1 in batches. As the cost of a Layer-1 submission is shared among multiple Layer-2 transactions, the average transaction cost per transaction may be lower than executing the same transactions directly on Ethereum Layer 1. The integrity of withdrawals from Base is supported by a fault-proof mechanism. Withdrawals are subject to a dispute period during which participants may challenge incorrect state commitments. The dispute process incorporates economic incentives intended to encourage honest behaviour and discourage invalid claims.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality

voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) base, binance_smart_chain, ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Gravity

G | JQGMWFSXV

Quantitative information

Quantitative sustainability indicators for Gravity

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Gravity	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	336.79590	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Beam

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Beam	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	331.22935	kWh/a

Qualitative information

S.4 Consensus Mechanism

Beam is present on the following networks: Avalanche, Binance Smart Chain, Ethereum.

The Avalanche C-Chain uses the Snowman++ consensus mechanism, which is Avalanche's consensus model for linear blockchains and is implemented through the ProposerVM wrapper. Under this model, validators repeatedly query a small random subset of other validators and converge on a preferred block once the required confidence thresholds are met. Only Primary Network validators are entitled to validate the C-Chain. To participate as a validator on Avalanche mainnet, a node must stake a minimum number of token. Token holders may also participate indirectly by delegating an existing validator. Validator identity and admission to staking require the relevant staking credentials, including BLS proofs of possession under the current staking framework. For block production, Snowman++ uses stake-weighted proposer windows. Through the ProposerVM, block-building opportunities are assigned to proposers in 5-second windows, after which block production may fall back more broadly to validators if necessary. This mechanism is intended to regulate block production while preserving network liveness. Consensus voting itself remains based on repeated sub-sampled polling rather than fixed validator committees. Avalanche documentation describes the finality model as sub-second and treated by the protocol as final and irreversible once accepted, while noting that safety is probabilistic in the formal sense because the probability of conflicting acceptance can be reduced to an arbitrarily low level through the protocol parameters. The protocol does not rely on slashing of staked principal. Instead, validator reward eligibility depends on compliance with protocol conditions, including uptime requirements.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum’s consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Beam is present on the following networks: Avalanche, Binance Smart Chain, Ethereum.

The Avalanche C-Chain is secured economically through the native AVAX token. Validator incentives are based primarily on staking rewards, not on redistribution of C-Chain transaction fees. A fixed amount of 360 million AVAX was minted at genesis, while additional AVAX is minted over time as validator rewards, subject to Avalanche’s capped token supply framework. Validator rewards are paid at the end of the staking period and are determined by factors such as the validator’s stake and compliance with staking conditions. Unlike some proof-of-stake systems, the Avalanche Primary Network does not use slashing of bonded principal as an ordinary penalty mechanism. Instead, the main protocol-level economic consequence for underperformance is the loss of reward eligibility. Where a validator fails to satisfy the applicable uptime requirement during its staking term, that validator does not receive the corresponding staking reward. Transaction fees apply on the C-Chain for transfers and smart-contract execution. The fee model follows EIP-1559 logic, meaning that transactions are priced through a dynamic base fee mechanism. In contrast to Ethereum’s validator tip model, C-Chain transaction fees are burned rather than distributed to validators. This means that C-Chain fees function as a supply-reduction mechanism and are intended in part to offset inflation arising from the minting of validator rewards. In addition to ordinary transaction and smart-contract execution fees, Avalanche documentation also recognises protocol fees in connection with other network operations on other chains of the Primary Network, such as certain import or export operations and staking-related actions. However, for the C-Chain itself, the core applicable fee

category is the gas fee for transaction inclusion and contract execution, and those fees are handled through the protocol burn mechanism rather than paid to validators or a treasury.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) avalanche, binance_smart_chain, ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is

determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Threshold Network Token

T | LTSB7W5CZ

Quantitative information

Quantitative sustainability indicators for Threshold Network Token

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Threshold Network Token	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	329.70546	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Bonk

BONK | H6KJTT0CP

Quantitative information

Quantitative sustainability indicators for Bonk

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Bonk	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	323.94456	kWh/a

Qualitative information

S.4 Consensus Mechanism

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.

- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.
- 2. Delegators:
 - Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.
- 3. Economic Security:
 - Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
 - Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.
2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.
3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.
4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Jito Staked SOL

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Jito Staked SOL	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	323.71059	kWh/a

Qualitative information

S.4 Consensus Mechanism

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):
 - Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
 - Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.
2. Proof of Stake (PoS):
 - Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
 - Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.

- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.
- 2. Delegators:
 - Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.
- 3. Economic Security:
 - Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
 - Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.
2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.
3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.
4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



HarryPotterObamaSonic10Inu (ERC-20)

BITCOIN | /

Quantitative information

Quantitative sustainability indicators for HarryPotterObamaSonic10Inu (ERC-20)

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	HarryPotterObamaSonic10Inu (ERC-20)	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	323.21640	kWh/a

Qualitative information

S.4 Consensus Mechanism

HarryPotterObamaSonic10Inu (ERC-20) is present on the following networks: Base, Ethereum, Solana.

Base does not operate its own consensus mechanism or decentralised validator set comparable to a Layer-1 blockchain. As an optimistic rollup Layer-2 network, Base relies on Ethereum's Proof-of-Stake consensus for the finality and settlement of data and state commitments posted to Ethereum Layer 1. Transaction ordering on Base is performed by a sequencer, currently operated by Coinbase. This sequencing function provides transaction ordering and execution on the Layer-2 network but does not constitute a decentralised consensus mechanism. The validity of Layer-2 state transitions is supported by an optimistic fault-proof mechanism, under which incorrect state commitments may be challenged during the applicable dispute period. Accordingly, Base's security model depends on Ethereum Layer 1 for settlement and finality, while Layer-2 transaction ordering remains dependent on the sequencer.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs,

approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.

- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.
2. Security:
- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
 - Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.
3. Economic Penalties:
- Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

HarryPotterObamaSonic10Inu (ERC-20) is present on the following networks: Base, Ethereum, Solana.

Base does not have a native protocol token and does not operate a staking, validator reward or token issuance mechanism. Transaction fees on Base are paid in ETH. The economic incentives within the network are primarily related to transaction processing and network security. Transactions are executed on Base and periodically submitted to Ethereum Layer 1 in batches. As the cost of a Layer-1 submission is shared among multiple Layer-2 transactions, the average transaction cost per transaction may be lower than executing the same transactions directly on Ethereum Layer 1. The integrity of withdrawals from Base is supported by a fault-proof mechanism. Withdrawals are subject to a dispute period during which participants may challenge incorrect state commitments. The dispute process incorporates economic incentives intended to encourage honest behaviour and discourage invalid claims.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.
- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.

2. Delegators:

- Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.

3. Economic Security:

- Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
- Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Fees Applicable on the Solana Blockchain

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.

2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.

3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.

4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) base, ethereum, solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of

participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Wrapped Eth

WeETH | /

Quantitative information

Quantitative sustainability indicators for Wrapped Eth

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Wrapped Eth	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	317.57457	kWh/a

Qualitative information

S.4 Consensus Mechanism

Wrapped Eth is present on the following networks: Arbitrum, Base, Binance Smart Chain, Ethereum, Linea, Optimism.

Arbitrum is an optimistic rollup that processes transactions on a Layer 2 network and relies on Ethereum for data availability and settlement. A sequencer orders incoming transactions, executes them and publishes compressed transaction batches to Ethereum. Arbitrum nodes can independently reconstruct and verify the resulting Layer 2 state using the transaction data published on the parent chain. Validators submit assertions representing the state of the network. Under the BoLD dispute protocol, conflicting or incorrect assertions may be challenged and resolved through an interactive fraud-proof process on Ethereum. Once an assertion has been confirmed and the applicable challenge process has been completed, the corresponding Layer 2 state is accepted for settlement purposes.

Base does not operate its own consensus mechanism or decentralised validator set comparable to a Layer-1 blockchain. As an optimistic rollup Layer-2 network, Base relies on Ethereum's Proof-of-Stake consensus for the finality and settlement of data and state commitments posted to Ethereum Layer 1. Transaction ordering on Base is performed by a sequencer, currently operated by Coinbase. This sequencing function provides transaction ordering and execution on the Layer-2 network but does not constitute a decentralised consensus mechanism. The validity of Layer-2 state transitions is supported by an optimistic fault-proof mechanism, under which incorrect state commitments may be challenged during the applicable dispute period. Accordingly, Base's security model depends on

Ethereum Layer 1 for settlement and finality, while Layer-2 transaction ordering remains dependent on the sequencer.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum’s consensus mechanism and Layer 2 functionality.

The Linea Network uses a Zero-Knowledge Rollup (ZK-Rollup) architecture with a zkEVM for Ethereum compatibility, and its consensus is derived from Ethereum’s own proof-of-stake security. While the Network has components like a sequencer for ordering transactions and a coordinator for network management, its consensus mechanism is fundamentally linked to the proof and verification process of zero-knowledge proofs and the security of the Ethereum mainnet. Instead of a typical decentralized consensus on a separate blockchain, the Network inherits its security and state finality from Ethereum.

Since Optimism is based on Ethereum, it ultimately inherits its security via the Ethereum blockchain and the proof-of-stake consensus. Within the rollup system, Optimism relies on a “fault proof” procedure. By default, transactions are assumed to be correct (“optimistic”). Only in the event of suspected faults is a fault proof initiated, in which incorrect transactions can be challenged by challengers. This model allows for high efficiency while ensuring correctness.

S.5 Incentive Mechanisms and Applicable Fees

Wrapped Eth is present on the following networks: Arbitrum, Base, Binance Smart Chain, Ethereum, Linea, Optimism.

Transactions on Arbitrum are subject to fees paid in ETH. The total fee generally consists of a Layer 2 execution component, which covers the computational resources required to process the transaction, and a parent-chain data component, which reflects the cost of publishing compressed transaction data to Ethereum. The amount payable therefore depends on the computational complexity of the transaction, the volume and compressibility of its data and the prevailing cost of data publication on Ethereum. Participants that submit or challenge state assertions under the dispute protocol must provide economic bonds. These bonds are intended to discourage incorrect assertions and compensate successful participants in the dispute process. Withdrawals through the canonical bridge become executable after the relevant Layer 2 state has been confirmed and the applicable challenge period has elapsed.

Base does not have a native protocol token and does not operate a staking, validator reward or token issuance mechanism. Transaction fees on Base are paid in ETH. The economic incentives within the network are primarily related to transaction processing and network security. Transactions are executed on Base and periodically submitted to Ethereum Layer 1 in batches. As the cost of a Layer-1 submission is shared among multiple Layer-2 transactions, the average transaction cost per transaction may be lower than executing the same transactions directly on Ethereum Layer 1. The integrity of withdrawals from Base is supported by a fault-proof mechanism. Withdrawals are subject to a dispute period during which participants may challenge incorrect state commitments. The dispute process incorporates economic incentives intended to encourage honest behaviour and discourage invalid claims.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block

proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

Like Ethereum, the Network uses a gas system, where gas is the unit of computational effort required to process a transaction. All gas fees on the Network are paid in Ether (ETH). The Network has a base fee that is designed to stabilize at 7 wei. The base fee still decreases or increases based on network traffic, similar to Ethereum, but it does not go below 7 wei. The Network does not require token staking for transaction validation purposes and thus provides no staking rewards. It does not offer incentives for running a full network node. It does charge fees collected by the sequencer for transaction processing. Those fees are paid in ETH, 20% of which are immediately burned while the remaining 80% are converted to Tokens and then burned.

Optimism charges lower transaction fees than Ethereum Layer 1, as transactions are bundled in the rollup and written to the Ethereum main chain in compressed form. Gas fees on Optimism continue to be paid in ETH. The incentive model is based on increased efficiency for users (lower fees, faster confirmation) and on the role of sequencers. Sequencers are central actors who collect, organize, and include transactions in the rollup. Their revenue comes from the gas fees they charge.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) arbitrum, base, binance_smart_chain, ethereum, linea, optimism is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Basic Attention Token

BAT | 51F8M277P

Quantitative information

Quantitative sustainability indicators for Basic Attention Token

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Basic Attention Token	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	308.62533	kWh/a

Qualitative information

S.4 Consensus Mechanism

Basic Attention Token is present on the following networks: Avalanche, Binance Smart Chain, Ethereum, Gnosis Chain, Near Protocol, Solana.

The Avalanche C-Chain uses the Snowman++ consensus mechanism, which is Avalanche's consensus model for linear blockchains and is implemented through the ProposerVM wrapper. Under this model, validators repeatedly query a small random subset of other validators and converge on a preferred block once the required confidence thresholds are met. Only Primary Network validators are entitled to validate the C-Chain. To participate as a validator on Avalanche mainnet, a node must stake a minimum number of token. Token holders may also participate indirectly by delegating an existing validator. Validator identity and admission to staking require the relevant staking credentials, including BLS proofs of possession under the current staking framework. For block production, Snowman++ uses stake-weighted proposer windows. Through the ProposerVM, block-building opportunities are assigned to proposers in 5-second windows, after which block production may fall back more broadly to validators if necessary. This mechanism is intended to regulate block production while preserving network liveness. Consensus voting itself remains based on repeated sub-sampled polling rather than fixed validator committees. Avalanche documentation describes the finality model as sub-second and treated by the protocol as final and irreversible once accepted, while noting that safety is probabilistic in the formal sense because the probability of conflicting acceptance can be reduced to an arbitrarily low level through the protocol parameters. The protocol does not rely on slashing of staked principal. Instead, validator reward eligibility depends on compliance with protocol conditions, including uptime requirements.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum’s consensus mechanism and Layer 2 functionality.

Gnosis Chain – Consensus Mechanism Gnosis Chain employs a dual-layer structure to balance scalability and security, using Proof of Stake (PoS) for its core consensus and transaction finality.

Core Components:

- **Two-Layer Structure**
 - Layer 1: Gnosis Beacon Chain** The Gnosis Beacon Chain operates on a Proof of Stake (PoS) mechanism, acting as the security and consensus backbone. Validators stake GNO tokens on the Beacon Chain and validate transactions, ensuring network security and finality.
 - Layer 2: Gnosis xDai Chain** processes transactions and dApp interactions, providing high-speed, low-cost transactions. Layer 2 transaction data is finalized on the Gnosis Beacon Chain, creating an integrated framework where Layer 1 ensures security and finality, and Layer 2 enhances scalability.
- Validator Role and Staking** Validators on the Gnosis Beacon Chain stake GNO tokens and participate in consensus by validating blocks. This setup ensures that validators have an economic interest in maintaining the security and integrity of both the Beacon Chain (Layer 1) and the xDai Chain (Layer 2). **Cross-Layer Security** Transactions on Layer 2 are ultimately finalized on Layer 1, providing security and finality to all activities on the Gnosis Chain. This architecture allows Gnosis Chain to combine the speed and cost efficiency of Layer 2 with the security guarantees of a PoS-secured Layer 1, making it suitable for both high-frequency applications and secure asset management.

The NEAR Protocol uses a unique consensus mechanism combining Proof of Stake (PoS) and a novel approach called DooMLug, which enables high efficiency, fast transaction processing, and secure finality in its operations.

Core Concepts:

1. Doomslug and Proof of Stake:

- NEAR's consensus mechanism primarily revolves around PoS, where validators stake NEAR tokens to participate in securing the network. However, NEAR's implementation is enhanced with the Doomslug protocol.
- Doomslug allows the network to achieve fast block finality by requiring blocks to be confirmed in two stages. Validators propose blocks in the first step, and finalization occurs when two-thirds of validators approve the block, ensuring rapid transaction confirmation.

2. Sharding with Nightshade:

- NEAR uses a dynamic sharding technique called Nightshade. This method splits the network into multiple shards, enabling parallel processing of transactions across the network, thus significantly increasing throughput. Each shard processes a portion of transactions, and the outcomes are merged into a single "snapshot" block.
- This sharding approach ensures scalability, allowing the network to grow and handle increasing demand efficiently.

Consensus Process:

1. Validator Selection:

- Validators are selected to propose and validate blocks based on the amount of NEAR tokens staked. This selection process is designed to ensure that only validators with significant stakes and community trust participate in securing the network.

2. Transaction Finality:

- NEAR achieves transaction finality through its PoS-based system, where validators vote on blocks. Once two-thirds of validators approve a block, it reaches finality under Doomslug, meaning that no forks can alter the confirmed state.

3. Epochs and Rotation:

- Validators are rotated in epochs to ensure fairness and decentralization. Epochs are intervals in which validators are reshuffled, and new block proposers are selected, ensuring a balance between performance and decentralization.

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Basic Attention Token is present on the following networks: Avalanche, Binance Smart Chain, Ethereum, Gnosis Chain, Near Protocol, Solana.

The Avalanche C-Chain is secured economically through the native AVAX token. Validator incentives are based primarily on staking rewards, not on redistribution of C-Chain transaction fees. A fixed amount of 360 million AVAX was minted at genesis, while additional AVAX is minted over time as validator rewards, subject to Avalanche's capped token supply framework. Validator rewards are paid at the end of the staking period and are determined by factors such as the validator's stake and compliance with staking conditions. Unlike some proof-of-stake systems, the Avalanche Primary Network does not use slashing of bonded principal as an ordinary penalty mechanism. Instead, the

main protocol-level economic consequence for underperformance is the loss of reward eligibility. Where a validator fails to satisfy the applicable uptime requirement during its staking term, that validator does not receive the corresponding staking reward. Transaction fees apply on the C-Chain for transfers and smart-contract execution. The fee model follows EIP-1559 logic, meaning that transactions are priced through a dynamic base fee mechanism. In contrast to Ethereum's validator tip model, C-Chain transaction fees are burned rather than distributed to validators. This means that C-Chain fees function as a supply-reduction mechanism and are intended in part to offset inflation arising from the minting of validator rewards. In addition to ordinary transaction and smart-contract execution fees, Avalanche documentation also recognises protocol fees in connection with other network operations on other chains of the Primary Network, such as certain import or export operations and staking-related actions. However, for the C-Chain itself, the core applicable fee category is the gas fee for transaction inclusion and contract execution, and those fees are handled through the protocol burn mechanism rather than paid to validators or a treasury.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to

slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

The Gnosis Chain's incentive and fee models encourage both validator participation and network accessibility, using a dual-token system to maintain low transaction costs and effective staking rewards.

Incentive Mechanisms:

- Staking Rewards for Validators GNO Rewards: Validators earn staking rewards in GNO tokens for their participation in consensus and securing the network.
- Delegation Model: GNO holders who do not operate validator nodes can delegate their GNO tokens to validators, allowing them to share in staking rewards and encouraging broader participation in network security.
- Dual-Token Model GNO: Used for staking, governance, and validator rewards, GNO aligns long-term network security incentives with token holders' economic interests.
- xDai: Serves as the primary transaction currency, providing stable and low-cost transactions. The use of a stable token (xDai) for fees minimizes volatility and offers predictable costs for users and developers.

Applicable Fees:

Transaction Fees in xDai Users pay transaction fees in xDai, the stable fee token, making costs affordable and predictable. This model is especially suited for high-frequency applications and dApps where low transaction fees are essential. xDai transaction fees are redistributed to validators as part of their compensation, aligning their rewards with network activity. Delegated Staking Rewards Through delegated staking, GNO holders can earn a share of staking rewards by delegating their tokens to active validators, promoting user participation in network security without requiring direct involvement in consensus operations.

NEAR Protocol employs several economic mechanisms to secure the network and incentivize participation.

Incentive Mechanisms to Secure Transactions:

1. Staking Rewards:

Validators and delegators secure the network by staking NEAR tokens. Validators earn around 5% annual inflation, with 90% of newly minted tokens distributed as staking rewards. Validators propose blocks, validate transactions, and receive a share of these rewards based on their staked tokens. Delegators earn rewards proportional to their delegation, encouraging broad participation.

2. Delegation:

Token holders can delegate their NEAR tokens to validators to increase the validator's stake and improve the chances of being selected to validate transactions. Delegators share in the validator's rewards based on their delegated tokens, incentivizing users to support reliable validators.

3. Slashing and Economic Penalties:

Validators face penalties for malicious behavior, such as failing to validate correctly or acting dishonestly. The slashing mechanism enforces security by deducting a portion of their staked tokens, ensuring validators follow the network's best interests.

4. Epoch Rotation and Validator Selection:

Validators are rotated regularly during epochs to ensure fairness and prevent centralization. Each epoch reshuffles validators, allowing the protocol to balance decentralization with performance.

Fees on the NEAR Blockchain:

1. Transaction Fees:

Users pay fees in NEAR tokens for transaction processing, which are burned to reduce the total circulating supply, introducing a potential deflationary effect over time. Validators also receive a portion of transaction fees as additional rewards, providing an ongoing incentive for network maintenance.

2. Storage Fees:

NEAR Protocol charges storage fees based on the amount of blockchain storage consumed by accounts, contracts, and data. This requires users to hold NEAR tokens as a deposit proportional to their storage usage, ensuring the efficient use of network resources.

3. Redistribution and Burning:

A portion of the transaction fees (burned NEAR tokens) reduces the overall supply, while the rest is distributed to validators as compensation for their work. The burning mechanism helps maintain long-term economic sustainability and potential value appreciation for NEAR holders.

4. Reserve Requirement:

Users must maintain a minimum account balance and reserves for data storage, encouraging efficient use of resources and preventing spam attacks.

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- **Staking Rewards:** Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.
- **Transaction Fees:** Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.

2. Delegators:

- **Delegated Staking:** Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.

3. Economic Security:

- **Slashing:** Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
- **Opportunity Cost:** By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Fees Applicable on the Solana Blockchain

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.

2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.

3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.

4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) avalanche, binance_smart_chain, ethereum, gnosis_chain, near_protocol, solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Biconomy Token

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Biconomy Token	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	304.88892	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

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The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Rekt (rekt.com)

REKT | /

Quantitative information

Quantitative sustainability indicators for Rekt (rekt.com)

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Rekt (rekt.com)	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	299.55793	kWh/a

Qualitative information

S.4 Consensus Mechanism

Rekt (rekt.com) is present on the following networks: Base, Binance Smart Chain, Ethereum, Solana.

Base does not operate its own consensus mechanism or decentralised validator set comparable to a Layer-1 blockchain. As an optimistic rollup Layer-2 network, Base relies on Ethereum's Proof-of-Stake consensus for the finality and settlement of data and state commitments posted to Ethereum Layer 1. Transaction ordering on Base is performed by a sequencer, currently operated by Coinbase. This sequencing function provides transaction ordering and execution on the Layer-2 network but does not constitute a decentralised consensus mechanism. The validity of Layer-2 state transitions is supported by an optimistic fault-proof mechanism, under which incorrect state commitments may be challenged during the applicable dispute period. Accordingly, Base's security model depends on Ethereum Layer 1 for settlement and finality, while Layer-2 transaction ordering remains dependent on the sequencer.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 "Cabinet" validators and 24 "Candidate" validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by

validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence

to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Rekt (rekt.com) is present on the following networks: Base, Binance Smart Chain, Ethereum, Solana.

Base does not have a native protocol token and does not operate a staking, validator reward or token issuance mechanism. Transaction fees on Base are paid in ETH. The economic incentives within the network are primarily related to transaction processing and network security. Transactions are executed on Base and periodically submitted to Ethereum Layer 1 in batches. As the cost of a Layer-1 submission is shared among multiple Layer-2 transactions, the average transaction cost per transaction may be lower than executing the same transactions directly on Ethereum Layer 1. The integrity of withdrawals from Base is supported by a fault-proof mechanism. Withdrawals are subject to a dispute period during which participants may challenge incorrect state commitments. The dispute process incorporates economic incentives intended to encourage honest behaviour and discourage invalid claims.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from

22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.
- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.

2. Delegators:

- Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.

3. Economic Security:

- Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their

staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.

- Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties. Fees Applicable on the Solana Blockchain

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.

2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.

3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.

4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) base, binance_smart_chain, ethereum, solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.


Fetch

FET | HWBLGXNBX

Quantitative information

Quantitative sustainability indicators for Fetch

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Fetch	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	294.33600	kWh/a

Qualitative information

S.4 Consensus Mechanism

Cronos operates on a Proof of Stake (PoS) model integrated with Tendermint's Byzantine Fault Tolerant (BFT) consensus, designed for decentralization, security, and interoperability. This model enables validators to be selected based on staking power, rewarding them for securing and validating the network.

Core Components:

- Proof of Stake (PoS) with Tendermint BFT Validator Selection: Validators are chosen based on the amount of CRO tokens staked, securing the network and producing blocks.
- Delegation Model: Token holders can delegate their CRO to validators, enabling participation in network security without needing to run a validator node.
- Cosmos SDK and Inter-Blockchain Communication (IBC) Cross-Chain Connectivity: Built on the Cosmos SDK, Cronos enables cross-chain communication, connecting to other Cosmos blockchains and ecosystems such as Ethereum and Binance Smart Chain.

S.5 Incentive Mechanisms and Applicable Fees

Cronos incentivizes validators and delegators with staking rewards and transaction fees, aligning economic incentives with network security and growth.

Incentive Mechanisms:

- Staking Rewards Validators and Delegators: Both groups earn CRO rewards for supporting network security. Delegators earn a portion of the validator rewards, promoting broader network participation.
- Deflationary Mechanism Token Burning: A portion of transaction fees and staking rewards may be periodically burned, reducing CRO supply over time and potentially increasing token value.

Applicable Fees:

- Transaction and Smart Contract Fees Standard Transactions: Users pay CRO for network transactions and dApp interactions, providing a steady income for validators.
- Ethereum-Compatible Gas Fees: Executing Ethereum-compatible smart contracts incurs gas fees, similar to Ethereum, payable in CRO.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) Cronos is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.


Rujira

RUJI | NX7TM2NSS

Quantitative information

Quantitative sustainability indicators for Rujira

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Rujira	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	281.45880	kWh/a

Qualitative information

S.4 Consensus Mechanism

THORChain utilizes the Tendermint Byzantine Fault Tolerant (BFT) consensus protocol combined with Proof of Stake (PoS), where validator nodes stake RUNE to secure the network.

Core Components of THORChain's Consensus:

1. Tendermint Consensus Protocol:

THORChain uses the Tendermint consensus protocol, a BFT algorithm that enables high-speed and secure consensus across distributed nodes. This protocol is designed to achieve consensus even if some validators behave maliciously, as long as a majority act honestly.

2. Proof of Stake (PoS) Mechanism:

- Staking Requirements: Validator nodes are required to stake RUNE, the native token of THORChain, to participate in the consensus process. Staking serves as collateral, incentivizing validators to act honestly and discouraging malicious behavior through economic penalties.
- Validator Rotation: THORChain regularly rotates its validators, ensuring that only the most actively engaged and well-staked nodes maintain validator status. This competitive environment encourages decentralization, as nodes must continuously stake RUNE to secure a spot in the validator set.

3. Slashing for Security:

Validators can be penalized (slashed) if they fail to fulfill their responsibilities or act dishonestly. Slashing serves as a deterrent against malicious behavior, ensuring validators remain reliable and maintain the integrity of the network.

S.5 Incentive Mechanisms and Applicable Fees

THORChain employs staking rewards, transaction fees, and slashing penalties to maintain security and incentivize validator participation.

Incentive Mechanisms:

1. Staking Rewards:

Validators earn staking rewards for participating in network security and consensus. These rewards are paid in RUNE, THORChain's native token, and are proportional to the amount staked. This incentivizes nodes to lock up RUNE and remain active in the network.

2. Transaction Fees:

Validators also earn a portion of the transaction fees generated within the network. These fees are distributed among validators as additional rewards, providing an ongoing incentive to process transactions efficiently.

3. Decentralization through Node Rotation:

The regular rotation of validator nodes means that participants must continuously compete for positions by staking RUNE. This mechanism enhances network security and promotes decentralization, preventing any single entity from dominating the network.

4. Slashing Mechanism:

To maintain network integrity, THORChain employs a slashing mechanism, penalizing validators that act maliciously or fail to meet their responsibilities. This encourages validators to act in the network's best interest.

Applicable Fees:

Transaction fees on THORChain are paid in RUNE and vary based on network activity and transaction type. These fees help compensate validators and support the network's operational costs.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) thorchain is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Bluzelle Token

BLZ | 2NFJBNQWN

Quantitative information

Quantitative sustainability indicators for Bluzelle Token

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Bluzelle Token	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	278.86875	kWh/a

Qualitative information

S.4 Consensus Mechanism

Bluzelle Token is present on the following networks: Binance Smart Chain, Ethereum.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon

Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Bluzelle Token is present on the following networks: Binance Smart Chain, Ethereum.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to

slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) binance_smart_chain, ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.


Memecoin

MEME | THW1BFN8J

Quantitative information

Quantitative sustainability indicators for Memecoin

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Memecoin	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	270.07486	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Sahara AI

SAHARA | 4PS1S77QG

Quantitative information

Quantitative sustainability indicators for Sahara AI

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Sahara AI	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	269.11733	kWh/a

Qualitative information

S.4 Consensus Mechanism

Sahara AI is present on the following networks: Binance Smart Chain, Ethereum.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon

Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Sahara AI is present on the following networks: Binance Smart Chain, Ethereum.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to

slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) binance_smart_chain, ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for KGeN

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	KGeN	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	268.15551	kWh/a

Qualitative information

S.4 Consensus Mechanism

KGeN is present on the following networks: Aptos Coin, Binance Smart Chain.

Aptos utilizes a Proof-of-Stake approach combined with a BFT consensus protocol to ensure high throughput, low latency, and secure transaction processing.

Core Components:

- Parallel Execution: Transactions are processed concurrently using Block-STM, a parallel execution engine, enabling high performance and scalability.
- Leader-Based BFT: A leader is selected among validators to propose blocks, while others validate and finalize transactions.
- Dynamic Validator Rotation: Validators are rotated regularly, enhancing decentralization and preventing collusion.
- Instant Finality: Transactions achieve finality once validated, ensuring that they are irreversible.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 "Cabinet" validators and 24 "Candidate" validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may

delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

S.5 Incentive Mechanisms and Applicable Fees

KGeN is present on the following networks: Aptos Coin, Binance Smart Chain.

Incentive Mechanism:

- Validator Rewards: Validators earn rewards in APT tokens for validating transactions and producing blocks. Rewards are distributed proportionally based on the stake of validators and their delegators.
- Delegator Participation: APT token holders can delegate their tokens to validators, earning a share of the staking rewards without running their own nodes.
- Slashing Mechanism: Validators face penalties, such as losing staked tokens, for malicious actions or prolonged inactivity, ensuring accountability and network security.

Applicable Fees:

- Transaction Fees: Users pay transaction fees in APT tokens for sending transactions and interacting with smart contracts.
- Dynamic Fee Adjustment: Fees are dynamically adjusted based on network activity and resource usage, ensuring cost efficiency and preventing congestion.
- Fee Distribution: Transaction fees are distributed among validators and delegators, providing an additional incentive for network participation.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction

fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) aptos_coin, binance_smart_chain is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Aerodrome

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Aerodrome	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	265.24349	kWh/a

Qualitative information

S.4 Consensus Mechanism

Base does not operate its own consensus mechanism or decentralised validator set comparable to a Layer-1 blockchain. As an optimistic rollup Layer-2 network, Base relies on Ethereum's Proof-of-Stake consensus for the finality and settlement of data and state commitments posted to Ethereum Layer 1. Transaction ordering on Base is performed by a sequencer, currently operated by Coinbase. This sequencing function provides transaction ordering and execution on the Layer-2 network but does not constitute a decentralised consensus mechanism. The validity of Layer-2 state transitions is supported by an optimistic fault-proof mechanism, under which incorrect state commitments may be challenged during the applicable dispute period. Accordingly, Base's security model depends on Ethereum Layer 1 for settlement and finality, while Layer-2 transaction ordering remains dependent on the sequencer.

S.5 Incentive Mechanisms and Applicable Fees

Base does not have a native protocol token and does not operate a staking, validator reward or token issuance mechanism. Transaction fees on Base are paid in ETH. The economic incentives within the network are primarily related to transaction processing and network security. Transactions are executed on Base and periodically submitted to Ethereum Layer 1 in batches. As the cost of a Layer-1 submission is shared among multiple Layer-2 transactions, the average transaction cost per transaction may be lower than executing the same transactions directly on Ethereum Layer 1. The integrity of withdrawals from Base is supported by a fault-proof mechanism. Withdrawals are subject to a dispute period during which participants may challenge incorrect state commitments. The

dispute process incorporates economic incentives intended to encourage honest behaviour and discourage invalid claims.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) base is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Immutable X

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Immutable X	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	262.84261	kWh/a

Qualitative information

S.4 Consensus Mechanism

Immutable X is present on the following networks: Binance Smart Chain, Ethereum.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon

Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Immutable X is present on the following networks: Binance Smart Chain, Ethereum.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to

slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) binance_smart_chain, ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Safe Token

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Safe Token	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	257.02845	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Decentraland

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Decentraland	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	252.04620	kWh/a

Qualitative information

S.4 Consensus Mechanism

Decentraland is present on the following networks: Ethereum, Gnosis Chain, Solana.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

Gnosis Chain – Consensus Mechanism Gnosis Chain employs a dual-layer structure to balance scalability and security, using Proof of Stake (PoS) for its core consensus and transaction finality.

Core Components:

- Two-Layer Structure Layer 1: Gnosis Beacon Chain The Gnosis Beacon Chain operates on a Proof of Stake (PoS) mechanism, acting as the security and consensus backbone. Validators stake GNO tokens on the Beacon Chain and validate transactions, ensuring network security and finality.
- Layer 2: Gnosis xDai Chain processes transactions and dApp interactions, providing high-speed, low-cost transactions. Layer 2 transaction data is finalized on the Gnosis Beacon Chain, creating an integrated framework where Layer 1 ensures security and finality, and Layer 2 enhances scalability. Validator Role and Staking Validators on the Gnosis Beacon Chain stake GNO tokens and participate in consensus by validating blocks. This setup ensures that validators have an economic interest in maintaining the security and integrity of both the Beacon Chain (Layer 1) and the xDai Chain (Layer 2). Cross-Layer Security Transactions on Layer 2 are ultimately finalized on Layer 1, providing security and finality to all activities on the Gnosis Chain. This architecture allows Gnosis Chain to combine the speed and cost efficiency of Layer 2 with the security guarantees of a PoS-secured Layer 1, making it suitable for both high-frequency applications and secure asset management.

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Decentraland is present on the following networks: Ethereum, Gnosis Chain, Solana.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

The Gnosis Chain's incentive and fee models encourage both validator participation and network accessibility, using a dual-token system to maintain low transaction costs and effective staking rewards.

Incentive Mechanisms:

- Staking Rewards for Validators GNO Rewards: Validators earn staking rewards in GNO tokens for their participation in consensus and securing the network.

- Delegation Model: GNO holders who do not operate validator nodes can delegate their GNO tokens to validators, allowing them to share in staking rewards and encouraging broader participation in network security.
- Dual-Token Model GNO: Used for staking, governance, and validator rewards, GNO aligns long-term network security incentives with token holders' economic interests.
- xDai: Serves as the primary transaction currency, providing stable and low-cost transactions. The use of a stable token (xDai) for fees minimizes volatility and offers predictable costs for users and developers.

Applicable Fees:

Transaction Fees in xDai Users pay transaction fees in xDai, the stable fee token, making costs affordable and predictable. This model is especially suited for high-frequency applications and dApps where low transaction fees are essential. xDai transaction fees are redistributed to validators as part of their compensation, aligning their rewards with network activity. Delegated Staking Rewards Through delegated staking, GNO holders can earn a share of staking rewards by delegating their tokens to active validators, promoting user participation in network security without requiring direct involvement in consensus operations.

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.
- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.

2. Delegators:

- Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.

3. Economic Security:

- Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
- Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Fees Applicable on the Solana Blockchain

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.

2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.

3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.

4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum, gnosis_chain, solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Rocket Pool

RPL | 69Q6NLJ3M

Quantitative information

Quantitative sustainability indicators for Rocket Pool

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Rocket Pool	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	246.88912	kWh/a

Qualitative information

S.4 Consensus Mechanism

Rocket Pool is present on the following networks: Ethereum, Polygon.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

Polygon PoS is an EVM-compatible sidechain that operates with a Proof-of-Stake consensus mechanism and periodically submits checkpoints to the Ethereum mainnet. The network maintains its own validator set and processes transactions independently from Ethereum, while using Ethereum smart contracts for staking-related functions and checkpoint verification. Polygon PoS therefore uses Ethereum as a staking and checkpointing layer, but does not rely on Ethereum for full

transaction execution or transaction data availability. The Polygon-side architecture consists of two primary node layers. The Bor layer is responsible for transaction execution and block production. The Heimdall layer is responsible for validator coordination, staking-related monitoring, consensus, and checkpoint finalisation. Heimdall is based on Cosmos SDK and CometBFT and aggregates blocks produced by Bor into periodic Merkle-root checkpoints that are submitted to smart contracts on the Ethereum mainnet. Validators participate in the network by staking POL tokens. Token holders may delegate POL tokens to validators, contributing to the validator's effective stake and participating indirectly in network validation. Following the Rio upgrade, Polygon PoS uses a Validator-Elected Block Producer model. Under this model, validators elect the block producer or block producers for a span, rather than relying on the previous stake-weighted selection model for multiple block producers over shorter intervals. Block production and transaction execution are performed on the Bor layer, while Heimdall validators coordinate consensus and checkpoint finalisation. At regular intervals, Heimdall validators aggregate blocks into a Merkle root and submit the resulting checkpoint to Ethereum smart contracts. These checkpoints provide an additional verification layer and support cross-chain verification, including in the context of asset transfers between Polygon PoS and Ethereum. This design enables higher transaction throughput and lower transaction costs than the Ethereum mainnet, while maintaining a technical connection to Ethereum through staking contracts and periodic checkpointing. Polygon PoS should therefore be understood as an independent sidechain or commit-chain architecture, rather than a rollup that inherits full execution and data availability security from Ethereum.

S.5 Incentive Mechanisms and Applicable Fees

Rocket Pool is present on the following networks: Ethereum, Polygon.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

Polygon PoS uses economic incentives to support validator participation, transaction processing, and network operation. Validators stake POL tokens and participate in block production, validation, voting, and checkpoint finalisation. Validators may receive rewards connected to their participation in the network, including rewards linked to validation activities and transaction-fee allocation, depending on the applicable protocol rules. Token holders who do not operate validator infrastructure may delegate POL tokens to validators. Delegators may receive a share of rewards attributable to the validator to whom they delegate, subject to the validator's commission and applicable protocol rules. Delegation increases the validator's effective stake and may affect its role in the validator set and related network processes. Following the Rio upgrade, Polygon PoS introduced a Validator-Elected Block Producer model, under which validators elect the block producer or block producers for a span. Publicly described protocol changes associated with this model also provide for redistribution of fees, including maximum extractable value-related fees where applicable, to non-producing validators under the relevant protocol design. This changes the incentive structure

from the previous model in which block production selection was more directly described by reference to stake-weighted producer selection. Polygon PoS includes protocol specifications for validator penalties, including slashing-related concepts. Transactions on Polygon PoS require payment of network fees in POL. Fees apply to ordinary token transfers, smart contract deployment, and smart contract interaction. The amount of fees may vary depending on network demand, transaction complexity, and computational resources required. Because Polygon PoS processes transactions independently from Ethereum, transaction fees are generally designed to be lower than equivalent activity on the Ethereum mainnet, although actual fees may change according to network conditions and protocol parameters.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum, polygon is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Vaulta

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Vaulta	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	246.37500	kWh/a

Qualitative information

S.4 Consensus Mechanism

The EOS blockchain operates on a Delegated Proof of Stake (DPoS) consensus mechanism, designed to provide high transaction throughput and low latency.

Core Components of EOS Consensus:

- Delegated Proof of Stake (DPoS) with Block Producers (BPs) Voting for Block Producers: EOS token holders vote to select 21 block producers (BPs) who validate transactions and produce blocks. This voting process is continuous, with token holders able to reallocate their votes at any time, ensuring the active block producers are consistently those with the most community support.
- Active Rotation: The top 21 BPs are rotated regularly to maintain a decentralized and representative set of validators, helping secure the network while giving all selected BPs equal opportunities for block production. Byzantine Fault Tolerance (BFT) in DPoS EOS incorporates BFT principles within its DPoS consensus to finalize blocks with a high degree of security. Transactions gain irreversibility once approved by a majority of block producers, providing faster finality and reducing the risk of forks or double-spending attacks.
- High Throughput and Block Production Block Time: EOS block producers create blocks in 0.5-second intervals, facilitating a rapid transaction processing rate. If a block producer misses their turn, the system immediately switches to the next producer, keeping network latency minimal.

S.5 Incentive Mechanisms and Applicable Fees

EOS incentivizes block producers to maintain the network and operates with unique staking and resource models to control transaction costs.

Incentive Mechanisms:

Block Producer Rewards Earning EOS Tokens: Block producers are rewarded in EOS tokens for validating transactions and producing blocks, providing the primary economic incentive for maintaining network operations and security. **Voting Rewards for BPs** Although not part of the core protocol, block producers often offer incentives to encourage token holders to vote for them. This encourages accountability, transparency, and performance, as EOS holders tend to favor reliable and engaged BPs.

Applicable Fees and Resource Model:

- **Fee-less Transactions for Users Resource Staking (CPU, NET):** Rather than charging direct transaction fees, EOS allows users to perform fee-less transactions by staking EOS tokens for network resources like CPU and NET bandwidth, which are required for transaction processing.
- **RAM for Storage:** dApp developers purchase RAM for data storage on the EOS network. RAM prices are determined through a market-based system, where supply and demand influence cost.
- **EOS EVM Gas Fees Dynamic Gas Model:** For transactions on the EOS EVM, gas fees are dynamically calculated, based on transaction demand, similar to Ethereum's gas model. These fees, paid in EOS tokens, enable Ethereum-compatible smart contracts to run on EOS, offering a familiar environment for EVM developers and users. **EOS EVM Integration With EOS EVM,** users and developers benefit from a familiar gas fee structure, allowing Ethereum-based applications to operate seamlessly on the EOS network while maintaining competitive costs.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) eos is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Clearpool

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Clearpool	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	245.32922	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Vision

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Vision	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	239.86958	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Yield Guild Games Token

YGG | WV93P8B45

Quantitative information

Quantitative sustainability indicators for Yield Guild Games Token

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Yield Guild Games Token	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	237.71314	kWh/a

Qualitative information

S.4 Consensus Mechanism

Yield Guild Games Token is present on the following networks: Ethereum, Harmony One, Ronin, Solana.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

Harmony operates on a consensus mechanism called Effective Proof of Stake (EPoS), designed to balance validator influence and enhance network security while improving transaction scalability.

Core Components:

1. Effective Proof of Stake (EPoS):

- Validator Diversity: EPoS allows a large number of validators to participate and limits the influence of high-stake validators, promoting decentralization and preventing stake centralization.
- Staking Across Shards: Multiple validators compete within each shard, distributing staking power more broadly and enhancing network security.

2. Sharding with PBFT Finality:

- Parallel Transaction Processing: Harmony's four shards enable independent processing of transactions and smart contracts, enhancing scalability and throughput.
- Fast Finality with PBFT: Each shard uses a modified Practical Byzantine Fault Tolerance (PBFT) model, ensuring immediate finality once blocks are validated and achieving high transaction speeds.

Ronin utilizes a Delegated Proof of Stake (DPoS) consensus mechanism, where community-elected validators are responsible for securing the network and validating transactions.

Core Components of Ronin's Consensus:

1. Delegated Proof of Stake (DPoS):

- Community Voting for Validator Selection: RON token holders delegate their tokens to vote for validators, who are then selected to produce blocks, validate transactions, and maintain network security. Validators with the most votes are chosen to participate in consensus.
- Periodic Validator Rotation: Validators are regularly rotated based on community votes, enhancing decentralization and preventing long-term control by any single validator group. This rotation supports both security and fairness.

2. Incentive-Driven Voting System:

Alignment with Community Interests: The voting system ensures that validators remain aligned with community goals. Validators that fail to perform adequately or act against network interests may lose votes and be replaced by more trusted participants.

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Yield Guild Games Token is present on the following networks: Ethereum, Harmony One, Ronin, Solana.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by

EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

Harmony incentivizes validators and delegators to participate in network security and performance through staking rewards, transaction fees, and a unique reward structure promoting decentralization.

Incentive Mechanisms:

1. Staking Rewards for Validators and Delegators:

ONE Token Rewards: Validators earn ONE tokens for validating transactions and securing the network, with a share of these rewards distributed to delegators based on the amount staked.

2. Decentralization Penalty for High Stake:

Reward Adjustment for Large Stakeholders: Validators with an excessive delegated stake experience reduced rewards, preventing centralization and encouraging a fair distribution of staking power.

Applicable Fees:

1. Transaction Fees:

Harmony charges minimal transaction fees in ONE tokens, benefiting high-frequency applications and providing validators with additional rewards.

Ronin's incentive model combines rewards, slashing mechanisms, and governance features to support network security and encourage active community participation.

Incentive Mechanisms:

1. Rewards for Validators and Delegators:

- Staking Rewards for Validators: Validators earn RON tokens as rewards for successfully producing blocks and validating transactions. These rewards incentivize validators to fulfill their duties diligently, maintaining network stability.
- Delegator Rewards: Delegators who stake their tokens with selected validators also earn a portion of the staking rewards. This sharing of rewards promotes broad participation from token holders in network security and governance.

2. Slashing Mechanism for Accountability:

- Penalty for Malicious Behavior: A slashing mechanism penalizes validators who act dishonestly or fail to meet performance standards by cutting a portion of their staked RON tokens. This deters misbehavior and encourages responsible participation.
- Delegator Risk: Delegators who stake with misbehaving validators are also subject to slashing, which encourages them to choose trustworthy validators and monitor performance carefully.

3. Governance Participation:

RON Token for Governance: Beyond staking and transaction fees, the RON token enables token holders to participate in governance. This includes voting on network upgrades, validator selection, and other protocol decisions, giving token holders a voice in network direction and policy.

Applicable Fees:

Transaction Fees: Fees are paid in RON tokens, contributing to validator rewards and helping to maintain network operations. These fees are designed to be affordable, ensuring accessibility for users while supporting validators' roles.

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- **Staking Rewards:** Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.
- **Transaction Fees:** Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.

2. Delegators:

- **Delegated Staking:** Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.

3. Economic Security:

- **Slashing:** Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
- **Opportunity Cost:** By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Fees Applicable on the Solana Blockchain

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.

2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.

3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.

4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum, harmony_one, ronin, solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Capricorn

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Capricorn	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	236.67005	kWh/a

Qualitative information

S.4 Consensus Mechanism

Capricorn is present on the following networks: Binance Smart Chain, Ethereum.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon

Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Capricorn is present on the following networks: Binance Smart Chain, Ethereum.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to

slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) binance_smart_chain, ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Fabric Protocol

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Fabric Protocol	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	230.01387	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for VELO

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	VELO	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	227.23507	kWh/a

Qualitative information

S.4 Consensus Mechanism

VELO is present on the following networks: Binance Smart Chain, Stellar.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Consensus is reached through the Stellar Consensus Protocol (SCP), which is based on federated Byzantine agreement. This mechanism allows fast finality without mining or staking, but it depends on validators choosing other validators which they trust to reach agreement, called a quorum set. As

a result, validator diversity and governance choices play a critical role in security, and concentration of influence among large operators may increase systemic risks.

S.5 Incentive Mechanisms and Applicable Fees

VELO is present on the following networks: Binance Smart Chain, Stellar.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Stellar does not use block rewards or mining. Instead, validators operate without direct protocol-level rewards. While this design keeps costs low, it may reduce incentives for validator participation compared to staking-based models. The sustainability of validator engagement depends largely on external factors such as institutional involvement and ecosystem adoption.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) binance_smart_chain, stellar is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical

data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Puffer

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Puffer	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	227.17770	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for StargateToken

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	StargateToken	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	222.38205	kWh/a

Qualitative information

S.4 Consensus Mechanism

StargateToken is present on the following networks: Arbitrum, Avalanche, Binance Smart Chain, Ethereum, Fantom, Polygon.

Arbitrum is an optimistic rollup that processes transactions on a Layer 2 network and relies on Ethereum for data availability and settlement. A sequencer orders incoming transactions, executes them and publishes compressed transaction batches to Ethereum. Arbitrum nodes can independently reconstruct and verify the resulting Layer 2 state using the transaction data published on the parent chain. Validators submit assertions representing the state of the network. Under the BoLD dispute protocol, conflicting or incorrect assertions may be challenged and resolved through an interactive fraud-proof process on Ethereum. Once an assertion has been confirmed and the applicable challenge process has been completed, the corresponding Layer 2 state is accepted for settlement purposes.

The Avalanche C-Chain uses the Snowman++ consensus mechanism, which is Avalanche's consensus model for linear blockchains and is implemented through the ProposerVM wrapper. Under this model, validators repeatedly query a small random subset of other validators and converge on a preferred block once the required confidence thresholds are met. Only Primary Network validators are entitled to validate the C-Chain. To participate as a validator on Avalanche mainnet, a node must stake a minimum number of token. Token holders may also participate indirectly by delegating an existing validator. Validator identity and admission to staking require the relevant staking credentials, including BLS proofs of possession under the current staking framework. For block production,

Snowman++ uses stake-weighted proposer windows. Through the ProposerVM, block-building opportunities are assigned to proposers in 5-second windows, after which block production may fall back more broadly to validators if necessary. This mechanism is intended to regulate block production while preserving network liveness. Consensus voting itself remains based on repeated sub-sampled polling rather than fixed validator committees. Avalanche documentation describes the finality model as sub-second and treated by the protocol as final and irreversible once accepted, while noting that safety is probabilistic in the formal sense because the probability of conflicting acceptance can be reduced to an arbitrarily low level through the protocol parameters. The protocol does not rely on slashing of staked principal. Instead, validator reward eligibility depends on compliance with protocol conditions, including uptime requirements.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum’s consensus mechanism and Layer 2 functionality.

Fantom operates on the Lachesis Protocol, an Asynchronous Byzantine Fault Tolerant (aBFT) consensus mechanism designed for fast, secure, and scalable transactions.

Core Components of Fantom’s Consensus:

1. Lachesis Protocol (aBFT):

- Asynchronous and Leaderless: Lachesis allows nodes to reach consensus independently without relying on a central leader, enhancing decentralization and speed.
- DAG Structure: Instead of a linear blockchain, Lachesis uses a Directed Acyclic Graph (DAG) structure, allowing multiple transactions to be processed in parallel across nodes. This structure supports high throughput, making the network suitable for applications requiring rapid transaction processing.

2. Event Blocks and Instant Finality:

- Event Blocks: Transactions are grouped into event blocks, which are validated asynchronously by multiple validators. When enough validators confirm an event block, it becomes part of the Fantom network's history.
- Instant Finality: Transactions on Fantom achieve immediate finality, meaning they are confirmed and cannot be reversed. This property is ideal for applications requiring fast and irreversible transactions.

Polygon PoS is an EVM-compatible sidechain that operates with a Proof-of-Stake consensus mechanism and periodically submits checkpoints to the Ethereum mainnet. The network maintains its own validator set and processes transactions independently from Ethereum, while using Ethereum smart contracts for staking-related functions and checkpoint verification. Polygon PoS therefore uses Ethereum as a staking and checkpointing layer, but does not rely on Ethereum for full transaction execution or transaction data availability. The Polygon-side architecture consists of two primary node layers. The Bor layer is responsible for transaction execution and block production. The Heimdall layer is responsible for validator coordination, staking-related monitoring, consensus, and checkpoint finalisation. Heimdall is based on Cosmos SDK and CometBFT and aggregates blocks produced by Bor into periodic Merkle-root checkpoints that are submitted to smart contracts on the Ethereum mainnet. Validators participate in the network by staking POL tokens. Token holders may delegate POL tokens to validators, contributing to the validator's effective stake and participating indirectly in network validation. Following the Rio upgrade, Polygon PoS uses a Validator-Elected Block Producer model. Under this model, validators elect the block producer or block producers for a span, rather than relying on the previous stake-weighted selection model for multiple block producers over shorter intervals. Block production and transaction execution are performed on the Bor layer, while Heimdall validators coordinate consensus and checkpoint finalisation. At regular intervals, Heimdall validators aggregate blocks into a Merkle root and submit the resulting checkpoint to Ethereum smart contracts. These checkpoints provide an additional verification layer and support cross-chain verification, including in the context of asset transfers between Polygon PoS and Ethereum. This design enables higher transaction throughput and lower transaction costs than the Ethereum mainnet, while maintaining a technical connection to Ethereum through staking contracts and periodic checkpointing. Polygon PoS should therefore be understood as an independent sidechain or commit-chain architecture, rather than a rollup that inherits full execution and data availability security from Ethereum.

S.5 Incentive Mechanisms and Applicable Fees

StargateToken is present on the following networks: Arbitrum, Avalanche, Binance Smart Chain, Ethereum, Fantom, Polygon.

Transactions on Arbitrum are subject to fees paid in ETH. The total fee generally consists of a Layer 2 execution component, which covers the computational resources required to process the transaction, and a parent-chain data component, which reflects the cost of publishing compressed transaction data to Ethereum. The amount payable therefore depends on the computational complexity of the transaction, the volume and compressibility of its data and the prevailing cost of data publication on Ethereum. Participants that submit or challenge state assertions under the dispute protocol must provide economic bonds. These bonds are intended to discourage incorrect assertions and compensate successful participants in the dispute process. Withdrawals through the canonical bridge become executable after the relevant Layer 2 state has been confirmed and the applicable challenge period has elapsed.

The Avalanche C-Chain is secured economically through the native AVAX token. Validator incentives are based primarily on staking rewards, not on redistribution of C-Chain transaction fees. A fixed

amount of 360 million AVAX was minted at genesis, while additional AVAX is minted over time as validator rewards, subject to Avalanche's capped token supply framework. Validator rewards are paid at the end of the staking period and are determined by factors such as the validator's stake and compliance with staking conditions. Unlike some proof-of-stake systems, the Avalanche Primary Network does not use slashing of bonded principal as an ordinary penalty mechanism. Instead, the main protocol-level economic consequence for underperformance is the loss of reward eligibility. Where a validator fails to satisfy the applicable uptime requirement during its staking term, that validator does not receive the corresponding staking reward. Transaction fees apply on the C-Chain for transfers and smart-contract execution. The fee model follows EIP-1559 logic, meaning that transactions are priced through a dynamic base fee mechanism. In contrast to Ethereum's validator tip model, C-Chain transaction fees are burned rather than distributed to validators. This means that C-Chain fees function as a supply-reduction mechanism and are intended in part to offset inflation arising from the minting of validator rewards. In addition to ordinary transaction and smart-contract execution fees, Avalanche documentation also recognises protocol fees in connection with other network operations on other chains of the Primary Network, such as certain import or export operations and staking-related actions. However, for the C-Chain itself, the core applicable fee category is the gas fee for transaction inclusion and contract execution, and those fees are handled through the protocol burn mechanism rather than paid to validators or a treasury.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

Fantom's incentive model promotes network security through staking rewards, transaction fees, and delegation options, encouraging broad participation.

Incentive Mechanisms:

1. Staking Rewards for Validators:

- Earning Rewards in FTM: Validators who participate in the consensus process earn rewards in FTM tokens, proportional to the amount they have staked. This incentivizes validators to actively secure the network.
- Dynamic Staking Rate: Fantom's staking reward rate is dynamic, adjusting based on total FTM staked across the network. As more FTM is staked, individual rewards may decrease, maintaining a balanced reward structure that supports long-term network security.

2. Delegation for Token Holders:

Delegated Staking: Users who do not operate validator nodes can delegate their FTM tokens to validators. In return, they share in the staking rewards, encouraging wider participation in securing the network.

Applicable Fees:

- Transaction Fees in FTM: Users pay transaction fees in FTM tokens. The network's high throughput and DAG structure keep fees low, making Fantom ideal for decentralized applications (dApps) requiring frequent transactions.
- Efficient Fee Model: The low fees and scalability of the network make it cost-effective for users, fostering a favorable environment for high-volume applications.

Polygon PoS uses economic incentives to support validator participation, transaction processing, and network operation. Validators stake POL tokens and participate in block production, validation, voting, and checkpoint finalisation. Validators may receive rewards connected to their participation in the network, including rewards linked to validation activities and transaction-fee allocation, depending on the applicable protocol rules. Token holders who do not operate validator infrastructure may delegate POL tokens to validators. Delegators may receive a share of rewards attributable to the validator to whom they delegate, subject to the validator's commission and applicable protocol rules. Delegation increases the validator's effective stake and may affect its role in the validator set and related network processes. Following the Rio upgrade, Polygon PoS introduced a Validator-Elected Block Producer model, under which validators elect the block producer or block producers for a span. Publicly described protocol changes associated with this model also provide for redistribution of fees, including maximum extractable value-related fees where applicable, to non-producing validators under the relevant protocol design. This changes the incentive structure from the previous model in which block production selection was more directly described by reference to stake-weighted producer selection. Polygon PoS includes protocol specifications for validator penalties, including slashing-related concepts. Transactions on Polygon PoS require payment of network fees in POL. Fees apply to ordinary token transfers, smart contract deployment, and smart contract interaction. The amount of fees may vary depending on network demand, transaction complexity, and computational resources required. Because Polygon PoS processes

transactions independently from Ethereum, transaction fees are generally designed to be lower than equivalent activity on the Ethereum mainnet, although actual fees may change according to network conditions and protocol parameters.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) arbitrum, avalanche, binance_smart_chain, ethereum, fantom, polygon is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for HoloToken

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	HoloToken	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	217.52138	kWh/a

Qualitative information

S.4 Consensus Mechanism

HoloToken is present on the following networks: Ethereum, Gnosis Chain.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

Gnosis Chain – Consensus Mechanism Gnosis Chain employs a dual-layer structure to balance scalability and security, using Proof of Stake (PoS) for its core consensus and transaction finality.

Core Components:

- Two-Layer Structure Layer 1: Gnosis Beacon Chain The Gnosis Beacon Chain operates on a Proof of Stake (PoS) mechanism, acting as the security and consensus backbone. Validators stake GNO tokens on the Beacon Chain and validate transactions, ensuring network security and finality.
- Layer 2: Gnosis xDai Chain processes transactions and dApp interactions, providing high-speed, low-cost transactions. Layer 2 transaction data is finalized on the Gnosis Beacon Chain, creating an integrated framework where Layer 1 ensures security and finality, and Layer 2 enhances scalability. Validator Role and Staking Validators on the Gnosis Beacon Chain stake GNO tokens and participate in consensus by validating blocks. This setup ensures that validators have an economic interest in maintaining the security and integrity of both the Beacon Chain (Layer 1) and the xDai Chain (Layer 2). Cross-Layer Security Transactions on Layer 2 are ultimately finalized on Layer 1, providing security and finality to all activities on the Gnosis Chain. This architecture allows Gnosis Chain to combine the speed and cost efficiency of Layer 2 with the security guarantees of a PoS-secured Layer 1, making it suitable for both high-frequency applications and secure asset management.

S.5 Incentive Mechanisms and Applicable Fees

HoloToken is present on the following networks: Ethereum, Gnosis Chain.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

The Gnosis Chain's incentive and fee models encourage both validator participation and network accessibility, using a dual-token system to maintain low transaction costs and effective staking rewards.

Incentive Mechanisms:

- Staking Rewards for Validators GNO Rewards: Validators earn staking rewards in GNO tokens for their participation in consensus and securing the network.
- Delegation Model: GNO holders who do not operate validator nodes can delegate their GNO tokens to validators, allowing them to share in staking rewards and encouraging broader participation in network security.
- Dual-Token Model GNO: Used for staking, governance, and validator rewards, GNO aligns long-term network security incentives with token holders' economic interests.
- xDai: Serves as the primary transaction currency, providing stable and low-cost transactions. The use of a stable token (xDai) for fees minimizes volatility and offers predictable costs for users and developers.

Applicable Fees:

Transaction Fees in xDai Users pay transaction fees in xDai, the stable fee token, making costs affordable and predictable. This model is especially suited for high-frequency applications and dApps where low transaction fees are essential. xDai transaction fees are redistributed to validators as part of their compensation, aligning their rewards with network activity. Delegated Staking Rewards Through delegated staking, GNO holders can earn a share of staking rewards by delegating their tokens to active validators, promoting user participation in network security without requiring direct involvement in consensus operations.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum, gnosis_chain is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



JoeToken

JOE | WV204Q4J4

Quantitative information

Quantitative sustainability indicators for JoeToken

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	JoeToken	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	216.09617	kWh/a

Qualitative information

S.4 Consensus Mechanism

JoeToken is present on the following networks: Arbitrum, Avalanche, Binance Smart Chain.

Arbitrum is an optimistic rollup that processes transactions on a Layer 2 network and relies on Ethereum for data availability and settlement. A sequencer orders incoming transactions, executes them and publishes compressed transaction batches to Ethereum. Arbitrum nodes can independently reconstruct and verify the resulting Layer 2 state using the transaction data published on the parent chain. Validators submit assertions representing the state of the network. Under the BoLD dispute protocol, conflicting or incorrect assertions may be challenged and resolved through an interactive fraud-proof process on Ethereum. Once an assertion has been confirmed and the applicable challenge process has been completed, the corresponding Layer 2 state is accepted for settlement purposes.

The Avalanche C-Chain uses the Snowman++ consensus mechanism, which is Avalanche's consensus model for linear blockchains and is implemented through the ProposerVM wrapper. Under this model, validators repeatedly query a small random subset of other validators and converge on a preferred block once the required confidence thresholds are met. Only Primary Network validators are entitled to validate the C-Chain. To participate as a validator on Avalanche mainnet, a node must stake a minimum number of token. Token holders may also participate indirectly by delegating an existing validator. Validator identity and admission to staking require the relevant staking credentials, including BLS proofs of possession under the current staking framework. For block production, Snowman++ uses stake-weighted proposer windows. Through the ProposerVM, block-building

opportunities are assigned to proposers in 5-second windows, after which block production may fall back more broadly to validators if necessary. This mechanism is intended to regulate block production while preserving network liveness. Consensus voting itself remains based on repeated sub-sampled polling rather than fixed validator committees. Avalanche documentation describes the finality model as sub-second and treated by the protocol as final and irreversible once accepted, while noting that safety is probabilistic in the formal sense because the probability of conflicting acceptance can be reduced to an arbitrarily low level through the protocol parameters. The protocol does not rely on slashing of staked principal. Instead, validator reward eligibility depends on compliance with protocol conditions, including uptime requirements.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

S.5 Incentive Mechanisms and Applicable Fees

JoeToken is present on the following networks: Arbitrum, Avalanche, Binance Smart Chain.

Transactions on Arbitrum are subject to fees paid in ETH. The total fee generally consists of a Layer 2 execution component, which covers the computational resources required to process the transaction, and a parent-chain data component, which reflects the cost of publishing compressed transaction data to Ethereum. The amount payable therefore depends on the computational complexity of the transaction, the volume and compressibility of its data and the prevailing cost of data publication on Ethereum. Participants that submit or challenge state assertions under the dispute protocol must provide economic bonds. These bonds are intended to discourage incorrect assertions and compensate successful participants in the dispute process. Withdrawals through the canonical bridge become executable after the relevant Layer 2 state has been confirmed and the applicable challenge period has elapsed.

The Avalanche C-Chain is secured economically through the native AVAX token. Validator incentives are based primarily on staking rewards, not on redistribution of C-Chain transaction fees. A fixed amount of 360 million AVAX was minted at genesis, while additional AVAX is minted over time as validator rewards, subject to Avalanche’s capped token supply framework. Validator rewards are paid at the end of the staking period and are determined by factors such as the validator’s stake and compliance with staking conditions. Unlike some proof-of-stake systems, the Avalanche Primary Network does not use slashing of bonded principal as an ordinary penalty mechanism. Instead, the main protocol-level economic consequence for underperformance is the loss of reward eligibility. Where a validator fails to satisfy the applicable uptime requirement during its staking term, that validator does not receive the corresponding staking reward. Transaction fees apply on the C-Chain for transfers and smart-contract execution. The fee model follows EIP-1559 logic, meaning that transactions are priced through a dynamic base fee mechanism. In contrast to Ethereum’s validator

tip model, C-Chain transaction fees are burned rather than distributed to validators. This means that C-Chain fees function as a supply-reduction mechanism and are intended in part to offset inflation arising from the minting of validator rewards. In addition to ordinary transaction and smart-contract execution fees, Avalanche documentation also recognises protocol fees in connection with other network operations on other chains of the Primary Network, such as certain import or export operations and staking-related actions. However, for the C-Chain itself, the core applicable fee category is the gas fee for transaction inclusion and contract execution, and those fees are handled through the protocol burn mechanism rather than paid to validators or a treasury.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) arbitrum, avalanche, binance_smart_chain is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Tria

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Tria	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	215.17543	kWh/a

Qualitative information

S.4 Consensus Mechanism

Tria is present on the following networks: Binance Smart Chain, Ethereum.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon

Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Tria is present on the following networks: Binance Smart Chain, Ethereum.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to

slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) binance_smart_chain, ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



RHEA Finance

RHEA | /

Quantitative information

Quantitative sustainability indicators for RHEA Finance

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	RHEA Finance	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	214.85660	kWh/a

Qualitative information

S.4 Consensus Mechanism

RHEA Finance is present on the following networks: Binance Smart Chain, Near Protocol.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

The NEAR Protocol uses a unique consensus mechanism combining Proof of Stake (PoS) and a novel approach called DooMslug, which enables high efficiency, fast transaction processing, and secure finality in its operations.

Core Concepts:

1. Doomslug and Proof of Stake:

- NEAR's consensus mechanism primarily revolves around PoS, where validators stake NEAR tokens to participate in securing the network. However, NEAR's implementation is enhanced with the Doomslug protocol.
- Doomslug allows the network to achieve fast block finality by requiring blocks to be confirmed in two stages. Validators propose blocks in the first step, and finalization occurs when two-thirds of validators approve the block, ensuring rapid transaction confirmation.

2. Sharding with Nightshade:

- NEAR uses a dynamic sharding technique called Nightshade. This method splits the network into multiple shards, enabling parallel processing of transactions across the network, thus significantly increasing throughput. Each shard processes a portion of transactions, and the outcomes are merged into a single "snapshot" block.
- This sharding approach ensures scalability, allowing the network to grow and handle increasing demand efficiently.

Consensus Process:

1. Validator Selection:

- Validators are selected to propose and validate blocks based on the amount of NEAR tokens staked. This selection process is designed to ensure that only validators with significant stakes and community trust participate in securing the network.

2. Transaction Finality:

- NEAR achieves transaction finality through its PoS-based system, where validators vote on blocks. Once two-thirds of validators approve a block, it reaches finality under Doomslug, meaning that no forks can alter the confirmed state.

3. Epochs and Rotation:

- Validators are rotated in epochs to ensure fairness and decentralization. Epochs are intervals in which validators are reshuffled, and new block proposers are selected, ensuring a balance between performance and decentralization.

S.5 Incentive Mechanisms and Applicable Fees

RHEA Finance is present on the following networks: Binance Smart Chain, Near Protocol.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The

staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

NEAR Protocol employs several economic mechanisms to secure the network and incentivize participation.

Incentive Mechanisms to Secure Transactions:

1. Staking Rewards:

Validators and delegators secure the network by staking NEAR tokens. Validators earn around 5% annual inflation, with 90% of newly minted tokens distributed as staking rewards. Validators propose blocks, validate transactions, and receive a share of these rewards based on their staked tokens. Delegators earn rewards proportional to their delegation, encouraging broad participation.

2. Delegation:

Token holders can delegate their NEAR tokens to validators to increase the validator's stake and improve the chances of being selected to validate transactions. Delegators share in the validator's rewards based on their delegated tokens, incentivizing users to support reliable validators.

3. Slashing and Economic Penalties:

Validators face penalties for malicious behavior, such as failing to validate correctly or acting dishonestly. The slashing mechanism enforces security by deducting a portion of their staked tokens, ensuring validators follow the network's best interests.

4. Epoch Rotation and Validator Selection:

Validators are rotated regularly during epochs to ensure fairness and prevent centralization. Each epoch reshuffles validators, allowing the protocol to balance decentralization with performance.

Fees on the NEAR Blockchain:

1. Transaction Fees:

Users pay fees in NEAR tokens for transaction processing, which are burned to reduce the total circulating supply, introducing a potential deflationary effect over time. Validators also receive a portion of transaction fees as additional rewards, providing an ongoing incentive for network maintenance.

2. Storage Fees:

NEAR Protocol charges storage fees based on the amount of blockchain storage consumed by accounts, contracts, and data. This requires users to hold NEAR tokens as a deposit proportional to their storage usage, ensuring the efficient use of network resources.

3. Redistribution and Burning:

A portion of the transaction fees (burned NEAR tokens) reduces the overall supply, while the rest is distributed to validators as compensation for their work. The burning mechanism helps maintain long-term economic sustainability and potential value appreciation for NEAR holders.

4. Reserve Requirement:

Users must maintain a minimum account balance and reserves for data storage, encouraging efficient use of resources and preventing spam attacks.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) binance_smart_chain, near_protocol is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Newton

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Newton	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	213.13862	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.


DAPPOS

DOS | /

Quantitative information

Quantitative sustainability indicators for DAPPOS

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	DAPPOS	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	211.38729	kWh/a

Qualitative information

S.4 Consensus Mechanism

DAPPOS is present on the following networks: Binance Smart Chain, Ethereum.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon

Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

DAPPOS is present on the following networks: Binance Smart Chain, Ethereum.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to

slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) binance_smart_chain, ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Pudgy Penguins

PENGU | 13JBPT88T

Quantitative information

Quantitative sustainability indicators for Pudgy Penguins

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Pudgy Penguins	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	205.50772	kWh/a

Qualitative information

S.4 Consensus Mechanism

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.

- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.
- 2. Delegators:
 - Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.
- 3. Economic Security:
 - Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
 - Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.
2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.
3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.
4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Orca

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Orca	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	204.56438	kWh/a

Qualitative information

S.4 Consensus Mechanism

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.

- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.
- 2. Delegators:
 - Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.
- 3. Economic Security:
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S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

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PowerLedger

POWR | JWDR0ZDL6

Quantitative information

Quantitative sustainability indicators for PowerLedger

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	PowerLedger	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	203.63743	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

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S.9 Energy consumption sources and methodologies

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Quantitative information

Quantitative sustainability indicators for RedStone

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	RedStone	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	200.73035	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

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S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Aevo

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Aevo	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	197.53966	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for edgeX_edge

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	edgeX_edge	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	196.27725	kWh/a

Qualitative information

S.4 Consensus Mechanism

edgeX_edge is present on the following networks: Binance Smart Chain, Ethereum.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon

Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

edgeX_edge is present on the following networks: Binance Smart Chain, Ethereum.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to

slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) binance_smart_chain, ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Re

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Re	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	195.34162	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

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S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for GoMining Token

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	GoMining Token	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	195.24915	kWh/a

Qualitative information

S.4 Consensus Mechanism

GoMining Token is present on the following networks: Binance Smart Chain, Ethereum.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

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S.5 Incentive Mechanisms and Applicable Fees

GoMining Token is present on the following networks: Binance Smart Chain, Ethereum.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

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slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) binance_smart_chain, ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Kamino Finance

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Kamino Finance	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	193.12642	kWh/a

Qualitative information

S.4 Consensus Mechanism

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):
 - Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
 - Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.
2. Proof of Stake (PoS):
 - Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
 - Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.

- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.
- 2. Delegators:
 - Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.
- 3. Economic Security:
 - Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
 - Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.
2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.
3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.
4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Euler

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Euler	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	181.44436	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

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S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Wormhole Token

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Wormhole Token	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	176.50911	kWh/a

Qualitative information

S.4 Consensus Mechanism

Wormhole Token is present on the following networks: Arbitrum, Ethereum, Optimism, Solana.

Arbitrum is an optimistic rollup that processes transactions on a Layer 2 network and relies on Ethereum for data availability and settlement. A sequencer orders incoming transactions, executes them and publishes compressed transaction batches to Ethereum. Arbitrum nodes can independently reconstruct and verify the resulting Layer 2 state using the transaction data published on the parent chain. Validators submit assertions representing the state of the network. Under the BoLD dispute protocol, conflicting or incorrect assertions may be challenged and resolved through an interactive fraud-proof process on Ethereum. Once an assertion has been confirmed and the applicable challenge process has been completed, the corresponding Layer 2 state is accepted for settlement purposes.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in

certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

Since Optimism is based on Ethereum, it ultimately inherits its security via the Ethereum blockchain and the proof-of-stake consensus. Within the rollup system, Optimism relies on a "fault proof" procedure. By default, transactions are assumed to be correct ("optimistic"). Only in the event of suspected faults is a fault proof initiated, in which incorrect transactions can be challenged by challengers. This model allows for high efficiency while ensuring correctness.

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Wormhole Token is present on the following networks: Arbitrum, Ethereum, Optimism, Solana.

Transactions on Arbitrum are subject to fees paid in ETH. The total fee generally consists of a Layer 2 execution component, which covers the computational resources required to process the transaction, and a parent-chain data component, which reflects the cost of publishing compressed transaction data to Ethereum. The amount payable therefore depends on the computational complexity of the transaction, the volume and compressibility of its data and the prevailing cost of data publication on Ethereum. Participants that submit or challenge state assertions under the dispute protocol must provide economic bonds. These bonds are intended to discourage incorrect assertions and compensate successful participants in the dispute process. Withdrawals through the canonical bridge become executable after the relevant Layer 2 state has been confirmed and the applicable challenge period has elapsed.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

Optimism charges lower transaction fees than Ethereum Layer 1, as transactions are bundled in the rollup and written to the Ethereum main chain in compressed form. Gas fees on Optimism continue to be paid in ETH. The incentive model is based on increased efficiency for users (lower fees, faster

confirmation) and on the role of sequencers. Sequencers are central actors who collect, organize, and include transactions in the rollup. Their revenue comes from the gas fees they charge.

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- **Staking Rewards:** Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.
- **Transaction Fees:** Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.

2. Delegators:

- **Delegated Staking:** Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.

3. Economic Security:

- **Slashing:** Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
- **Opportunity Cost:** By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Fees Applicable on the Solana Blockchain

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.

2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.

3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.

4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) arbitrum, ethereum, optimism, solana is calculated first. For the energy consumption of the token, a

fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Infinex

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Infinex	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	175.65468	kWh/a

Qualitative information

S.4 Consensus Mechanism

Infinex is present on the following networks: Binance Smart Chain, Ethereum, Solana.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon

Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Infinex is present on the following networks: Binance Smart Chain, Ethereum, Solana.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.
- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.

2. Delegators:

- Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.

3. Economic Security:

- Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
- Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties. Fees Applicable on the Solana Blockchain

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.

2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.

3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.

4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) binance_smart_chain, ethereum, solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Moonwalk Fitness

MF | /

Quantitative information

Quantitative sustainability indicators for Moonwalk Fitness

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Moonwalk Fitness	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	175.44883	kWh/a

Qualitative information

S.4 Consensus Mechanism

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.

- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.
- 2. Delegators:
 - Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.
- 3. Economic Security:
 - Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
 - Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.
2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.
3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.
4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Usual

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Usual	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	174.21211	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Dent

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Dent	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	169.24880	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Mask Network

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Mask Network	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	168.55186	kWh/a

Qualitative information

S.4 Consensus Mechanism

Mask Network is present on the following networks: Binance Smart Chain, Ethereum, Polygon.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon

Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

Polygon PoS is an EVM-compatible sidechain that operates with a Proof-of-Stake consensus mechanism and periodically submits checkpoints to the Ethereum mainnet. The network maintains its own validator set and processes transactions independently from Ethereum, while using Ethereum smart contracts for staking-related functions and checkpoint verification. Polygon PoS therefore uses Ethereum as a staking and checkpointing layer, but does not rely on Ethereum for full transaction execution or transaction data availability. The Polygon-side architecture consists of two primary node layers. The Bor layer is responsible for transaction execution and block production. The Heimdall layer is responsible for validator coordination, staking-related monitoring, consensus, and checkpoint finalisation. Heimdall is based on Cosmos SDK and CometBFT and aggregates blocks produced by Bor into periodic Merkle-root checkpoints that are submitted to smart contracts on the Ethereum mainnet. Validators participate in the network by staking POL tokens. Token holders may delegate POL tokens to validators, contributing to the validator's effective stake and participating indirectly in network validation. Following the Rio upgrade, Polygon PoS uses a Validator-Elected Block Producer model. Under this model, validators elect the block producer or block producers for a span, rather than relying on the previous stake-weighted selection model for multiple block producers over shorter intervals. Block production and transaction execution are performed on the Bor layer, while Heimdall validators coordinate consensus and checkpoint finalisation. At regular intervals, Heimdall validators aggregate blocks into a Merkle root and submit the resulting checkpoint to Ethereum smart contracts. These checkpoints provide an additional verification layer and support cross-chain verification, including in the context of asset transfers between Polygon PoS and Ethereum. This design enables higher transaction throughput and lower transaction costs than the Ethereum mainnet, while maintaining a technical connection to Ethereum through staking contracts and periodic checkpointing. Polygon PoS should therefore be understood as an independent sidechain or commit-chain architecture, rather than a rollup that inherits full execution and data availability security from Ethereum.

S.5 Incentive Mechanisms and Applicable Fees

Mask Network is present on the following networks: Binance Smart Chain, Ethereum, Polygon.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are

updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

Polygon PoS uses economic incentives to support validator participation, transaction processing, and network operation. Validators stake POL tokens and participate in block production, validation, voting, and checkpoint finalisation. Validators may receive rewards connected to their participation in the network, including rewards linked to validation activities and transaction-fee allocation, depending on the applicable protocol rules. Token holders who do not operate validator infrastructure may delegate POL tokens to validators. Delegators may receive a share of rewards attributable to the validator to whom they delegate, subject to the validator's commission and applicable protocol rules. Delegation increases the validator's effective stake and may affect its role in the validator set and related network processes. Following the Rio upgrade, Polygon PoS introduced a Validator-Elected Block Producer model, under which validators elect the block producer or block producers for a span. Publicly described protocol changes associated with this model also provide for redistribution of fees, including maximum extractable value-related fees where applicable, to non-producing validators under the relevant protocol design. This changes the incentive structure from the previous model in which block production selection was more directly described by reference to stake-weighted producer selection. Polygon PoS includes protocol specifications for validator penalties, including slashing-related concepts. Transactions on Polygon PoS require payment of network fees in POL. Fees apply to ordinary token transfers, smart contract deployment, and smart contract interaction. The amount of fees may vary depending on network demand, transaction complexity, and computational resources required. Because Polygon PoS processes transactions independently from Ethereum, transaction fees are generally designed to be lower than equivalent activity on the Ethereum mainnet, although actual fees may change according to network conditions and protocol parameters.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) binance_smart_chain, ethereum, polygon is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for RaveDAO

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	RaveDAO	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	165.83339	kWh/a

Qualitative information

S.4 Consensus Mechanism

RaveDAO is present on the following networks: Base, Binance Smart Chain, Ethereum.

Base does not operate its own consensus mechanism or decentralised validator set comparable to a Layer-1 blockchain. As an optimistic rollup Layer-2 network, Base relies on Ethereum's Proof-of-Stake consensus for the finality and settlement of data and state commitments posted to Ethereum Layer 1. Transaction ordering on Base is performed by a sequencer, currently operated by Coinbase. This sequencing function provides transaction ordering and execution on the Layer-2 network but does not constitute a decentralised consensus mechanism. The validity of Layer-2 state transitions is supported by an optimistic fault-proof mechanism, under which incorrect state commitments may be challenged during the applicable dispute period. Accordingly, Base's security model depends on Ethereum Layer 1 for settlement and finality, while Layer-2 transaction ordering remains dependent on the sequencer.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 "Cabinet" validators and 24 "Candidate" validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by

validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

RaveDAO is present on the following networks: Base, Binance Smart Chain, Ethereum.

Base does not have a native protocol token and does not operate a staking, validator reward or token issuance mechanism. Transaction fees on Base are paid in ETH. The economic incentives within the network are primarily related to transaction processing and network security. Transactions are executed on Base and periodically submitted to Ethereum Layer 1 in batches. As the cost of a Layer-1 submission is shared among multiple Layer-2 transactions, the average transaction cost per transaction may be lower than executing the same transactions directly on Ethereum Layer 1. The integrity of withdrawals from Base is supported by a fault-proof mechanism. Withdrawals are subject to a dispute period during which participants may challenge incorrect state commitments. The dispute process incorporates economic incentives intended to encourage honest behaviour and discourage invalid claims.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The

staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) base, binance_smart_chain, ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Alchemy

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Alchemy	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	159.52899	kWh/a

Qualitative information

S.4 Consensus Mechanism

Alchemy is present on the following networks: Binance Smart Chain, Ethereum.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon

Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Alchemy is present on the following networks: Binance Smart Chain, Ethereum.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to

slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) binance_smart_chain, ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for SSV

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	SSV	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	158.96766	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.


Layer3

L3 | GCG7S59XF

Quantitative information

Quantitative sustainability indicators for Layer3

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Layer3	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	154.50069	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Treehouse

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Treehouse	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	153.35137	kWh/a

Qualitative information

S.4 Consensus Mechanism

Treehouse is present on the following networks: Binance Smart Chain, Ethereum.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon

Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Treehouse is present on the following networks: Binance Smart Chain, Ethereum.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to

slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) binance_smart_chain, ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



POPCAT

POPCAT | CPLCKVT11

Quantitative information

Quantitative sustainability indicators for POPCAT

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	POPCAT	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	152.69831	kWh/a

Qualitative information

S.4 Consensus Mechanism

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.

- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.
- 2. Delegators:
 - Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.
- 3. Economic Security:
 - Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
 - Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.
2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.
3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.
4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for WINKLink

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	WINKLink	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	152.50420	kWh/a

Qualitative information

S.4 Consensus Mechanism

The Tron blockchain operates on a Delegated Proof of Stake (DPoS) consensus mechanism, designed to improve scalability, transaction speed, and energy efficiency.

Core Components:

1. Delegated Proof of Stake (DPoS): Tron uses DPoS, where token holders vote for a group of delegates known as Super Representatives (SRs) who are responsible for validating transactions and producing new blocks on the network. Token holders can vote for SRs based on their stake in the Tron network, and the top 27 SRs (or more, depending on the protocol version) are selected to participate in the block production process. SRs take turns producing blocks, which are added to the blockchain. This is done on a rotational basis to ensure decentralization and prevent control by a small group of validators.
2. Block Production: The Super Representatives generate new blocks and confirm transactions. The Tron blockchain achieves block finality quickly, with block production occurring every 3 seconds, making it highly efficient and capable of processing thousands of transactions per second.
3. Voting and Governance: Tron's DPoS system also allows token holders to vote on important network decisions, such as protocol upgrades and changes to the system's parameters. Voting power is proportional to the amount of TRX (Tron's native token) that a user holds and chooses to stake. This provides a governance system where the community can actively participate in decision-making.

4. Super Representatives: The Super Representatives play a crucial role in maintaining the security and stability of the Tron blockchain. They are responsible for validating transactions, proposing new blocks, and ensuring the overall functionality of the network. Super Representatives are incentivized with block rewards (newly minted TRX tokens) and transaction fees for their work.

S.5 Incentive Mechanisms and Applicable Fees

The Tron blockchain uses a Delegated Proof of Stake (DPoS) consensus mechanism to secure its network and incentivize participation.

Incentive Mechanism:

1. Super Representatives (SRs) Rewards:
 - Block Rewards: Super Representatives (SRs), who are elected by TRX holders, are rewarded for producing blocks. Each block they produce comes with a block reward in the form of TRX tokens.
 - Transaction Fees: In addition to block rewards, SRs receive transaction fees for validating transactions and including them in blocks. This ensures they are incentivized to process transactions efficiently.
2. Voting and Delegation:
 - TRX Staking: TRX holders can stake their tokens and vote for Super Representatives (SRs). When TRX holders vote, they delegate their voting power to SRs, which allows SRs to earn rewards in the form of newly minted TRX tokens.
 - Delegator Rewards: Token holders who delegate their votes to an SR can also receive a share of the rewards. This means delegators share in the block rewards and transaction fees that the SR earns.
 - Incentivizing Participation: The more tokens a user stakes, the more voting power they have, which encourages participation in governance and network security.
3. Incentive for SRs:

SRs are also incentivized to maintain the health and performance of the network. Their reputation and continued election depend on their ability to produce blocks consistently and efficiently process transactions.

Applicable Fees:

1. Transaction Fees:
 - Fee Calculation: Users must pay transaction fees to have their transactions processed. The transaction fee varies based on the complexity of the transaction and the network's current demand. This is paid in TRX tokens.
 - Fee Distribution: Transaction fees are distributed to Super Representatives (SRs), giving them an ongoing income to maintain and support the network.
2. Storage Fees:

Tron charges storage fees for data storage on the blockchain. This includes storing smart contracts, tokens, and other data on the network. Users are required to pay these fees in TRX tokens to store data.
3. Energy and Bandwidth:

Energy: Tron uses a resource model that allows users to access network resources like bandwidth and energy through staking. Users who stake their TRX tokens receive energy

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) tron is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



ALT | B7HS0LP5T

Quantitative information

Quantitative sustainability indicators for AltLayer Token

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	AltLayer Token	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	151.79997	kWh/a

Qualitative information

S.4 Consensus Mechanism

AltLayer Token is present on the following networks: Binance Smart Chain, Ethereum.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

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Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

AltLayer Token is present on the following networks: Binance Smart Chain, Ethereum.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to

slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) binance_smart_chain, ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.


Ankr

ANKR | BL90MVXW4

Quantitative information

Quantitative sustainability indicators for Ankr

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Ankr	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	148.62090	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ankr is present on the following networks: Arbitrum, Avalanche, Binance Smart Chain, Ethereum, Fantom, Optimism, Polygon, Solana.

Arbitrum is an optimistic rollup that processes transactions on a Layer 2 network and relies on Ethereum for data availability and settlement. A sequencer orders incoming transactions, executes them and publishes compressed transaction batches to Ethereum. Arbitrum nodes can independently reconstruct and verify the resulting Layer 2 state using the transaction data published on the parent chain. Validators submit assertions representing the state of the network. Under the BoLD dispute protocol, conflicting or incorrect assertions may be challenged and resolved through an interactive fraud-proof process on Ethereum. Once an assertion has been confirmed and the applicable challenge process has been completed, the corresponding Layer 2 state is accepted for settlement purposes.

The Avalanche C-Chain uses the Snowman++ consensus mechanism, which is Avalanche's consensus model for linear blockchains and is implemented through the ProposerVM wrapper. Under this model, validators repeatedly query a small random subset of other validators and converge on a preferred block once the required confidence thresholds are met. Only Primary Network validators are entitled to validate the C-Chain. To participate as a validator on Avalanche mainnet, a node must stake a minimum number of token. Token holders may also participate indirectly by delegating an existing validator. Validator identity and admission to staking require the relevant staking credentials, including BLS proofs of possession under the current staking framework. For block production,

Snowman++ uses stake-weighted proposer windows. Through the ProposerVM, block-building opportunities are assigned to proposers in 5-second windows, after which block production may fall back more broadly to validators if necessary. This mechanism is intended to regulate block production while preserving network liveness. Consensus voting itself remains based on repeated sub-sampled polling rather than fixed validator committees. Avalanche documentation describes the finality model as sub-second and treated by the protocol as final and irreversible once accepted, while noting that safety is probabilistic in the formal sense because the probability of conflicting acceptance can be reduced to an arbitrarily low level through the protocol parameters. The protocol does not rely on slashing of staked principal. Instead, validator reward eligibility depends on compliance with protocol conditions, including uptime requirements.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum’s consensus mechanism and Layer 2 functionality.

Fantom operates on the Lachesis Protocol, an Asynchronous Byzantine Fault Tolerant (aBFT) consensus mechanism designed for fast, secure, and scalable transactions.

Core Components of Fantom’s Consensus:

1. Lachesis Protocol (aBFT):

- Asynchronous and Leaderless: Lachesis allows nodes to reach consensus independently without relying on a central leader, enhancing decentralization and speed.
- DAG Structure: Instead of a linear blockchain, Lachesis uses a Directed Acyclic Graph (DAG) structure, allowing multiple transactions to be processed in parallel across nodes. This structure supports high throughput, making the network suitable for applications requiring rapid transaction processing.

2. Event Blocks and Instant Finality:

- Event Blocks: Transactions are grouped into event blocks, which are validated asynchronously by multiple validators. When enough validators confirm an event block, it becomes part of the Fantom network's history.
- Instant Finality: Transactions on Fantom achieve immediate finality, meaning they are confirmed and cannot be reversed. This property is ideal for applications requiring fast and irreversible transactions.

Since Optimism is based on Ethereum, it ultimately inherits its security via the Ethereum blockchain and the proof-of-stake consensus. Within the rollup system, Optimism relies on a "fault proof" procedure. By default, transactions are assumed to be correct ("optimistic"). Only in the event of suspected faults is a fault proof initiated, in which incorrect transactions can be challenged by challengers. This model allows for high efficiency while ensuring correctness.

Polygon PoS is an EVM-compatible sidechain that operates with a Proof-of-Stake consensus mechanism and periodically submits checkpoints to the Ethereum mainnet. The network maintains its own validator set and processes transactions independently from Ethereum, while using Ethereum smart contracts for staking-related functions and checkpoint verification. Polygon PoS therefore uses Ethereum as a staking and checkpointing layer, but does not rely on Ethereum for full transaction execution or transaction data availability. The Polygon-side architecture consists of two primary node layers. The Bor layer is responsible for transaction execution and block production. The Heimdall layer is responsible for validator coordination, staking-related monitoring, consensus, and checkpoint finalisation. Heimdall is based on Cosmos SDK and CometBFT and aggregates blocks produced by Bor into periodic Merkle-root checkpoints that are submitted to smart contracts on the Ethereum mainnet. Validators participate in the network by staking POL tokens. Token holders may delegate POL tokens to validators, contributing to the validator's effective stake and participating indirectly in network validation. Following the Rio upgrade, Polygon PoS uses a Validator-Elected Block Producer model. Under this model, validators elect the block producer or block producers for a span, rather than relying on the previous stake-weighted selection model for multiple block producers over shorter intervals. Block production and transaction execution are performed on the Bor layer, while Heimdall validators coordinate consensus and checkpoint finalisation. At regular intervals, Heimdall validators aggregate blocks into a Merkle root and submit the resulting checkpoint to Ethereum smart contracts. These checkpoints provide an additional verification layer and support cross-chain verification, including in the context of asset transfers between Polygon PoS and Ethereum. This design enables higher transaction throughput and lower transaction costs than the Ethereum mainnet, while maintaining a technical connection to Ethereum through staking contracts and periodic checkpointing. Polygon PoS should therefore be understood as an independent sidechain or commit-chain architecture, rather than a rollup that inherits full execution and data availability security from Ethereum.

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Ankr is present on the following networks: Arbitrum, Avalanche, Binance Smart Chain, Ethereum, Fantom, Optimism, Polygon, Solana.

Transactions on Arbitrum are subject to fees paid in ETH. The total fee generally consists of a Layer 2 execution component, which covers the computational resources required to process the transaction, and a parent-chain data component, which reflects the cost of publishing compressed transaction data to Ethereum. The amount payable therefore depends on the computational complexity of the transaction, the volume and compressibility of its data and the prevailing cost of data publication on Ethereum. Participants that submit or challenge state assertions under the dispute protocol must provide economic bonds. These bonds are intended to discourage incorrect assertions and compensate successful participants in the dispute process. Withdrawals through the canonical bridge become executable after the relevant Layer 2 state has been confirmed and the applicable challenge period has elapsed.

The Avalanche C-Chain is secured economically through the native AVAX token. Validator incentives are based primarily on staking rewards, not on redistribution of C-Chain transaction fees. A fixed amount of 360 million AVAX was minted at genesis, while additional AVAX is minted over time as validator rewards, subject to Avalanche's capped token supply framework. Validator rewards are paid at the end of the staking period and are determined by factors such as the validator's stake and compliance with staking conditions. Unlike some proof-of-stake systems, the Avalanche Primary Network does not use slashing of bonded principal as an ordinary penalty mechanism. Instead, the main protocol-level economic consequence for underperformance is the loss of reward eligibility. Where a validator fails to satisfy the applicable uptime requirement during its staking term, that validator does not receive the corresponding staking reward. Transaction fees apply on the C-Chain for transfers and smart-contract execution. The fee model follows EIP-1559 logic, meaning that transactions are priced through a dynamic base fee mechanism. In contrast to Ethereum's validator tip model, C-Chain transaction fees are burned rather than distributed to validators. This means that C-Chain fees function as a supply-reduction mechanism and are intended in part to offset inflation arising from the minting of validator rewards. In addition to ordinary transaction and smart-contract execution fees, Avalanche documentation also recognises protocol fees in connection with other network operations on other chains of the Primary Network, such as certain import or export operations and staking-related actions. However, for the C-Chain itself, the core applicable fee category is the gas fee for transaction inclusion and contract execution, and those fees are handled through the protocol burn mechanism rather than paid to validators or a treasury.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely

on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

Fantom's incentive model promotes network security through staking rewards, transaction fees, and delegation options, encouraging broad participation.

Incentive Mechanisms:

1. Staking Rewards for Validators:

- Earning Rewards in FTM: Validators who participate in the consensus process earn rewards in FTM tokens, proportional to the amount they have staked. This incentivizes validators to actively secure the network.
- Dynamic Staking Rate: Fantom's staking reward rate is dynamic, adjusting based on total FTM staked across the network. As more FTM is staked, individual rewards may decrease, maintaining a balanced reward structure that supports long-term network security.

2. Delegation for Token Holders:

Delegated Staking: Users who do not operate validator nodes can delegate their FTM tokens to validators. In return, they share in the staking rewards, encouraging wider participation in securing the network.

Applicable Fees:

- Transaction Fees in FTM: Users pay transaction fees in FTM tokens. The network's high throughput and DAG structure keep fees low, making Fantom ideal for decentralized applications (dApps) requiring frequent transactions.
- Efficient Fee Model: The low fees and scalability of the network make it cost-effective for users, fostering a favorable environment for high-volume applications.

Optimism charges lower transaction fees than Ethereum Layer 1, as transactions are bundled in the rollup and written to the Ethereum main chain in compressed form. Gas fees on Optimism continue to be paid in ETH. The incentive model is based on increased efficiency for users (lower fees, faster confirmation) and on the role of sequencers. Sequencers are central actors who collect, organize, and include transactions in the rollup. Their revenue comes from the gas fees they charge.

Polygon PoS uses economic incentives to support validator participation, transaction processing, and network operation. Validators stake POL tokens and participate in block production, validation, voting, and checkpoint finalisation. Validators may receive rewards connected to their participation in the network, including rewards linked to validation activities and transaction-fee allocation, depending on the applicable protocol rules. Token holders who do not operate validator infrastructure may delegate POL tokens to validators. Delegators may receive a share of rewards attributable to the validator to whom they delegate, subject to the validator's commission and applicable protocol rules. Delegation increases the validator's effective stake and may affect its role in the validator set and related network processes. Following the Rio upgrade, Polygon PoS introduced a Validator-Elected Block Producer model, under which validators elect the block producer or block producers for a span. Publicly described protocol changes associated with this model also provide for redistribution of fees, including maximum extractable value-related fees where applicable, to non-producing validators under the relevant protocol design. This changes the incentive structure from the previous model in which block production selection was more directly described by reference to stake-weighted producer selection. Polygon PoS includes protocol specifications for validator penalties, including slashing-related concepts. Transactions on Polygon PoS require payment of network fees in POL. Fees apply to ordinary token transfers, smart contract deployment, and smart contract interaction. The amount of fees may vary depending on network demand, transaction complexity, and computational resources required. Because Polygon PoS processes transactions independently from Ethereum, transaction fees are generally designed to be lower than equivalent activity on the Ethereum mainnet, although actual fees may change according to network conditions and protocol parameters.

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.
- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.

2. Delegators:

- Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.

3. Economic Security:

- Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
- Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties. Fees Applicable on the Solana Blockchain

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.

2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.

3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.

4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) arbitrum, avalanche, binance_smart_chain, ethereum, fantom, optimism, polygon, solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Gnosis Token

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Gnosis Token	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	148.12416	kWh/a

Qualitative information

S.4 Consensus Mechanism

Gnosis Token is present on the following networks: Arbitrum, Ethereum.

Arbitrum is an optimistic rollup that processes transactions on a Layer 2 network and relies on Ethereum for data availability and settlement. A sequencer orders incoming transactions, executes them and publishes compressed transaction batches to Ethereum. Arbitrum nodes can independently reconstruct and verify the resulting Layer 2 state using the transaction data published on the parent chain. Validators submit assertions representing the state of the network. Under the BoLD dispute protocol, conflicting or incorrect assertions may be challenged and resolved through an interactive fraud-proof process on Ethereum. Once an assertion has been confirmed and the applicable challenge process has been completed, the corresponding Layer 2 state is accepted for settlement purposes.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in

certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Gnosis Token is present on the following networks: Arbitrum, Ethereum.

Transactions on Arbitrum are subject to fees paid in ETH. The total fee generally consists of a Layer 2 execution component, which covers the computational resources required to process the transaction, and a parent-chain data component, which reflects the cost of publishing compressed transaction data to Ethereum. The amount payable therefore depends on the computational complexity of the transaction, the volume and compressibility of its data and the prevailing cost of data publication on Ethereum. Participants that submit or challenge state assertions under the dispute protocol must provide economic bonds. These bonds are intended to discourage incorrect assertions and compensate successful participants in the dispute process. Withdrawals through the canonical bridge become executable after the relevant Layer 2 state has been confirmed and the applicable challenge period has elapsed.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) arbitrum, ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Midnight

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Midnight	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	147.87971	kWh/a

Qualitative information

S.4 Consensus Mechanism

Midnight is present on the following networks: Binance Smart Chain, Cardano.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Core Components: Cardano uses the Ouroboros consensus mechanism, a Proof of Stake (PoS) protocol designed for scalability, security, and energy efficiency.

Core Concepts:

1. Proof of Stake (PoS): Validators (called slot leaders) are selected based on the amount of ADA they have staked, rather than solving complex computational puzzles. Validators propose and validate blocks, which are added to the blockchain.
2. Epochs and Slot Leaders: Cardano divides time into epochs (fixed time periods), each of which is subdivided into slots. Slot leaders are selected for each slot to validate and propose blocks. Slot leaders are chosen randomly based on the amount of ADA staked. More stake increases the probability of being selected. Validators are responsible for confirming transactions during their slot and passing the block to the next slot leader.
3. Delegation and Staking Pools: ADA holders can delegate their tokens to staking pools, which increases the pool's chances of being selected to validate a block. The pool operator and delegators share the rewards based on their stakes. This system ensures that participants who do not want to operate a full validator node can still earn rewards and contribute to network security by supporting trusted staking pools.
4. Security and Adversary Resistance: Ouroboros ensures security even in the presence of potential attacks. It assumes that adversaries may attempt to propagate alternative chains or send arbitrary messages. The protocol is secure as long as more than 51% of the staked ADA is controlled by honest participants. Settlement Delay: To protect against adversarial attacks, the new slot leader must consider the last few blocks as transient. Only the blocks preceding these are treated as finalized, ensuring that chain finality is secure against manipulation attempts. This mechanism also allows participants to temporarily go offline and resynchronize as long as they are not disconnected for more than the settlement delay period.
5. Chain Selection: Cardano's nodes adopt the longest valid chain rule: each node stores a local copy of the blockchain and replaces it with any discovered valid, longer chain. This ensures that all nodes eventually converge on a single version of the blockchain, maintaining network consistency.

S.5 Incentive Mechanisms and Applicable Fees

Midnight is present on the following networks: Binance Smart Chain, Cardano.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction

fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Cardano uses incentive mechanisms to ensure network security and decentralization through staking rewards, slashing mechanisms, and transaction fees.

Incentive Mechanisms to Secure Transactions:

1. Staking Rewards:

- Validators, known as slot leaders, secure the network by validating transactions and creating new blocks. To participate, validators must stake ADA, and those with larger stakes are more likely to be selected as slot leaders.
- Validators are rewarded with newly minted ADA and transaction fees for successfully producing blocks and validating transactions.
- Delegators, who may not wish to run a validator node, can delegate their ADA to staking pools. By doing so, they contribute to the network's security and earn a share of the rewards earned by the pool. The rewards are distributed proportionally based on the amount of ADA delegated.

2. Slashing Mechanism:

- To prevent malicious behavior, Cardano employs a slashing mechanism. Validators who act dishonestly, fail to validate transactions properly, or produce incorrect blocks face penalties that involve the slashing of a portion of their staked ADA.
- This provides strong economic incentives for validators to act honestly and ensures the network's integrity and security.

3. Delegation and Pool Operation:

- Staking pools can charge operation fees (a margin on rewards) to maintain their infrastructure. This includes fixed costs set by pool operators. Delegators earn rewards after pool fees are deducted, providing a balanced incentive for both operators and delegators to participate actively.
- Rewards are distributed at the end of each epoch, where staking pool performance and participation determine the distribution of ADA rewards to all stakeholders.

Applicable Fees:

1. Transaction Fees:

- Transaction fees on Cardano are paid in ADA and are generally low. They are calculated based on the size of the transaction and the network's current demand. These fees are paid to validators for including transactions in new blocks.
- The fee formula is: $a + b \times \text{size}$, where a is a constant (typically 0.155381 ADA), b is a coefficient related to the transaction size (0.000043946 ADA/byte), and size refers to the transaction size in bytes. This ensures that the fee adapts based on network load and the size of each transaction.

2. Staking Pool Fees:

- Staking pool operators charge operational costs and a margin fee, which covers the cost of running and maintaining the staking pool. These fees vary between pools but ensure that operators can continue to provide their services while offering rewards to delegators.
- After the operator's fee, the remaining rewards are distributed among the delegators based on the size of their stake.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) binance_smart_chain, cardano is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Liquity

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Liquity	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	145.99216	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Across Protocol Token

ACX | 1J4GM86GD

Quantitative information

Quantitative sustainability indicators for Across Protocol Token

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Across Protocol Token	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	144.78678	kWh/a

Qualitative information

S.4 Consensus Mechanism

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XY Oracle

XYO | B1LR50328

Quantitative information

Quantitative sustainability indicators for XY Oracle

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	XY Oracle	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	144.14864	kWh/a

Qualitative information

S.4 Consensus Mechanism

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S.9 Energy consumption sources and methodologies

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Quantitative information

Quantitative sustainability indicators for Arkham

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Arkham	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	143.93593	kWh/a

Qualitative information

S.4 Consensus Mechanism

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S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Star Atlas

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Star Atlas	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	143.44833	kWh/a

Qualitative information

S.4 Consensus Mechanism

Star Atlas is present on the following networks: Binance Smart Chain, Ethereum, Solana.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon

Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Star Atlas is present on the following networks: Binance Smart Chain, Ethereum, Solana.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.
- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.

2. Delegators:

- Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.

3. Economic Security:

- Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
- Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties. Fees Applicable on the Solana Blockchain

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.

2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.

3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.

4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) binance_smart_chain, ethereum, solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.


API3

API3 | 9PJW29SF7

Quantitative information

Quantitative sustainability indicators for API3

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	API3	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	142.94327	kWh/a

Qualitative information

S.4 Consensus Mechanism

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S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.


Blur

BLUR | R91SVKW99

Quantitative information

Quantitative sustainability indicators for Blur

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Blur	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	141.52518	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Aster

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Aster	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	139.25469	kWh/a

Qualitative information

S.4 Consensus Mechanism

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

S.5 Incentive Mechanisms and Applicable Fees

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that

proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) `binance_smart_chain` is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Succinct

PROVE | 1ZZ7H452N

Quantitative information

Quantitative sustainability indicators for Succinct

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Succinct	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	139.18534	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



UMA Voting Token v1

UMA | JM4LKD71T

Quantitative information

Quantitative sustainability indicators for UMA Voting Token v1

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	UMA Voting Token v1	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	137.97996	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Everything

EV | 7V4002CQ1

Quantitative information

Quantitative sustainability indicators for Everything

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Everything	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	137.69634	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Pyth Network

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Pyth Network	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	136.99787	kWh/a

Qualitative information

S.4 Consensus Mechanism

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):
 - Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
 - Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.
2. Proof of Stake (PoS):
 - Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
 - Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.

- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.
- 2. Delegators:
 - Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.
- 3. Economic Security:
 - Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
 - Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.
2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.
3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.
4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Vanar

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Vanar	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	134.74483	kWh/a

Qualitative information

S.4 Consensus Mechanism

Vanar is present on the following networks: Ethereum, Polygon.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

Polygon PoS is an EVM-compatible sidechain that operates with a Proof-of-Stake consensus mechanism and periodically submits checkpoints to the Ethereum mainnet. The network maintains its own validator set and processes transactions independently from Ethereum, while using Ethereum smart contracts for staking-related functions and checkpoint verification. Polygon PoS therefore uses Ethereum as a staking and checkpointing layer, but does not rely on Ethereum for full

transaction execution or transaction data availability. The Polygon-side architecture consists of two primary node layers. The Bor layer is responsible for transaction execution and block production. The Heimdall layer is responsible for validator coordination, staking-related monitoring, consensus, and checkpoint finalisation. Heimdall is based on Cosmos SDK and CometBFT and aggregates blocks produced by Bor into periodic Merkle-root checkpoints that are submitted to smart contracts on the Ethereum mainnet. Validators participate in the network by staking POL tokens. Token holders may delegate POL tokens to validators, contributing to the validator's effective stake and participating indirectly in network validation. Following the Rio upgrade, Polygon PoS uses a Validator-Elected Block Producer model. Under this model, validators elect the block producer or block producers for a span, rather than relying on the previous stake-weighted selection model for multiple block producers over shorter intervals. Block production and transaction execution are performed on the Bor layer, while Heimdall validators coordinate consensus and checkpoint finalisation. At regular intervals, Heimdall validators aggregate blocks into a Merkle root and submit the resulting checkpoint to Ethereum smart contracts. These checkpoints provide an additional verification layer and support cross-chain verification, including in the context of asset transfers between Polygon PoS and Ethereum. This design enables higher transaction throughput and lower transaction costs than the Ethereum mainnet, while maintaining a technical connection to Ethereum through staking contracts and periodic checkpointing. Polygon PoS should therefore be understood as an independent sidechain or commit-chain architecture, rather than a rollup that inherits full execution and data availability security from Ethereum.

S.5 Incentive Mechanisms and Applicable Fees

Vanar is present on the following networks: Ethereum, Polygon.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

Polygon PoS uses economic incentives to support validator participation, transaction processing, and network operation. Validators stake POL tokens and participate in block production, validation, voting, and checkpoint finalisation. Validators may receive rewards connected to their participation in the network, including rewards linked to validation activities and transaction-fee allocation, depending on the applicable protocol rules. Token holders who do not operate validator infrastructure may delegate POL tokens to validators. Delegators may receive a share of rewards attributable to the validator to whom they delegate, subject to the validator's commission and applicable protocol rules. Delegation increases the validator's effective stake and may affect its role in the validator set and related network processes. Following the Rio upgrade, Polygon PoS introduced a Validator-Elected Block Producer model, under which validators elect the block producer or block producers for a span. Publicly described protocol changes associated with this model also provide for redistribution of fees, including maximum extractable value-related fees where applicable, to non-producing validators under the relevant protocol design. This changes the incentive structure

from the previous model in which block production selection was more directly described by reference to stake-weighted producer selection. Polygon PoS includes protocol specifications for validator penalties, including slashing-related concepts. Transactions on Polygon PoS require payment of network fees in POL. Fees apply to ordinary token transfers, smart contract deployment, and smart contract interaction. The amount of fees may vary depending on network demand, transaction complexity, and computational resources required. Because Polygon PoS processes transactions independently from Ethereum, transaction fees are generally designed to be lower than equivalent activity on the Ethereum mainnet, although actual fees may change according to network conditions and protocol parameters.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum, polygon is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Swell Governance Token

SWELL | G2M3R6WBH

Quantitative information

Quantitative sustainability indicators for Swell Governance Token

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Swell Governance Token	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	133.93841	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

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Jeo Boden

BODEN | /

Quantitative information

Quantitative sustainability indicators for Jeo Boden

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Jeo Boden	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	133.13967	kWh/a

Qualitative information

S.4 Consensus Mechanism

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.

- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.
- 2. Delegators:
 - Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.
- 3. Economic Security:
 - Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
 - Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.
2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.
3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.
4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for HTX

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	HTX	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	133.10527	kWh/a

Qualitative information

S.4 Consensus Mechanism

HTX is present on the following networks: Binance Smart Chain, Ethereum, Tron.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon

Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

The Tron blockchain operates on a Delegated Proof of Stake (DPoS) consensus mechanism, designed to improve scalability, transaction speed, and energy efficiency.

Core Components:

1. Delegated Proof of Stake (DPoS): Tron uses DPoS, where token holders vote for a group of delegates known as Super Representatives (SRs) who are responsible for validating transactions and producing new blocks on the network. Token holders can vote for SRs based on their stake in the Tron network, and the top 27 SRs (or more, depending on the protocol version) are selected to participate in the block production process. SRs take turns producing blocks, which are added to the blockchain. This is done on a rotational basis to ensure decentralization and prevent control by a small group of validators.
2. Block Production: The Super Representatives generate new blocks and confirm transactions. The Tron blockchain achieves block finality quickly, with block production occurring every 3 seconds, making it highly efficient and capable of processing thousands of transactions per second.
3. Voting and Governance: Tron's DPoS system also allows token holders to vote on important network decisions, such as protocol upgrades and changes to the system's parameters. Voting power is proportional to the amount of TRX (Tron's native token) that a user holds and chooses to stake. This provides a governance system where the community can actively participate in decision-making.
4. Super Representatives: The Super Representatives play a crucial role in maintaining the security and stability of the Tron blockchain. They are responsible for validating transactions, proposing new blocks, and ensuring the overall functionality of the network. Super Representatives are incentivized with block rewards (newly minted TRX tokens) and transaction fees for their work.

S.5 Incentive Mechanisms and Applicable Fees

HTX is present on the following networks: Binance Smart Chain, Ethereum, Tron.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for

misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

The Tron blockchain uses a Delegated Proof of Stake (DPoS) consensus mechanism to secure its network and incentivize participation.

Incentive Mechanism:

1. Super Representatives (SRs) Rewards:

- Block Rewards: Super Representatives (SRs), who are elected by TRX holders, are rewarded for producing blocks. Each block they produce comes with a block reward in the form of TRX tokens.
- Transaction Fees: In addition to block rewards, SRs receive transaction fees for validating transactions and including them in blocks. This ensures they are incentivized to process transactions efficiently.

2. Voting and Delegation:

- TRX Staking: TRX holders can stake their tokens and vote for Super Representatives (SRs). When TRX holders vote, they delegate their voting power to SRs, which allows SRs to earn rewards in the form of newly minted TRX tokens.
- Delegator Rewards: Token holders who delegate their votes to an SR can also receive a share of the rewards. This means delegators share in the block rewards and transaction fees that the SR earns.
- Incentivizing Participation: The more tokens a user stakes, the more voting power they have, which encourages participation in governance and network security.

3. Incentive for SRs:

SRs are also incentivized to maintain the health and performance of the network. Their reputation and continued election depend on their ability to produce blocks consistently and efficiently process transactions.

Applicable Fees:

1. Transaction Fees:

- Fee Calculation: Users must pay transaction fees to have their transactions processed. The transaction fee varies based on the complexity of the transaction and the network's current demand. This is paid in TRX tokens. Transaction
- Fee Distribution: Transaction fees are distributed to Super Representatives (SRs), giving them an ongoing income to maintain and support the network.

2. Storage Fees:

Tron charges storage fees for data storage on the blockchain. This includes storing smart contracts, tokens, and other data on the network. Users are required to pay these fees in TRX tokens to store data.

3. Energy and Bandwidth:

Energy: Tron uses a resource model that allows users to access network resources like bandwidth and energy through staking. Users who stake their TRX tokens receive \energy

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) binance_smart_chain, ethereum, tron is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.


Gitcoin

GITCOIN | 7JZQ9SP76

Quantitative information

Quantitative sustainability indicators for Gitcoin

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Gitcoin	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	128.90420	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

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attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

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Bitlayer

BTR | /

Quantitative information

Quantitative sustainability indicators for Bitlayer

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Bitlayer	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	127.84063	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

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Quantitative information

Quantitative sustainability indicators for Renzo

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Renzo	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	127.34430	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for DOVU

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	DOVU	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	123.83033	kWh/a

Qualitative information

S.4 Consensus Mechanism

DOVU is present on the following networks: Base, Ethereum, Hedera Hbar.

Base does not operate its own consensus mechanism or decentralised validator set comparable to a Layer-1 blockchain. As an optimistic rollup Layer-2 network, Base relies on Ethereum's Proof-of-Stake consensus for the finality and settlement of data and state commitments posted to Ethereum Layer 1. Transaction ordering on Base is performed by a sequencer, currently operated by Coinbase. This sequencing function provides transaction ordering and execution on the Layer-2 network but does not constitute a decentralised consensus mechanism. The validity of Layer-2 state transitions is supported by an optimistic fault-proof mechanism, under which incorrect state commitments may be challenged during the applicable dispute period. Accordingly, Base's security model depends on Ethereum Layer 1 for settlement and finality, while Layer-2 transaction ordering remains dependent on the sequencer.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the

canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

Hedera Hashgraph operates on a unique Hashgraph consensus algorithm, a directed acyclic graph (DAG) system that diverges from traditional blockchain technology. It uses Asynchronous Byzantine Fault Tolerance (aBFT) to secure the network.

Core Components:

1. Hashgraph Consensus and aBFT:

Hedera Hashgraph's consensus mechanism achieves aBFT, which allows the network to tolerate malicious nodes without compromising security, ensuring high levels of fault tolerance and stability.

2. Gossip about Gossip Protocol:

The network employs a "Gossip about Gossip" protocol, where nodes share transaction information along with details of previous gossip events. This process allows each node to rapidly learn the entire network state, enhancing communication efficiency and minimizing latency.

3. Virtual Voting:

Hedera does not rely on traditional miners or stakers. Instead, it uses virtual voting, where nodes reach consensus by analyzing the gossip history and simulating votes based on the order and frequency of transactions received. Virtual voting eliminates the need for actual voting messages, reducing network congestion and speeding up consensus.

4. Deterministic Finality:

Once consensus is reached, transactions achieve deterministic finality instantly, making them irreversible and confirmed within seconds. This attribute is ideal for applications needing quick and irreversible transaction confirmations.

5. Staking for Network Security:

Hedera incorporates staking to bolster network security. HBAR holders can stake their tokens to support validator nodes, contributing to the network's resilience and encouraging long-term engagement in consensus operations.

S.5 Incentive Mechanisms and Applicable Fees

DOVU is present on the following networks: Base, Ethereum, Hedera Hbar.

Base does not have a native protocol token and does not operate a staking, validator reward or token issuance mechanism. Transaction fees on Base are paid in ETH. The economic incentives within the network are primarily related to transaction processing and network security. Transactions are executed on Base and periodically submitted to Ethereum Layer 1 in batches. As the cost of a Layer-1 submission is shared among multiple Layer-2 transactions, the average transaction cost per transaction may be lower than executing the same transactions directly on Ethereum Layer 1. The integrity of withdrawals from Base is supported by a fault-proof mechanism. Withdrawals are subject to a dispute period during which participants may challenge incorrect state commitments. The dispute process incorporates economic incentives intended to encourage honest behaviour and discourage invalid claims.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block

proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

Hedera Hashgraph incentivizes network participation through transaction fees and staking rewards, with a structured and predictable fee model designed for enterprise use.

Incentive Mechanisms:

1. Staking Rewards for Nodes:

- HBAR Rewards for Node Operators: Node operators earn HBAR rewards for providing network security and processing transactions, incentivizing them to act honestly and support network stability.
- User Staking: HBAR holders can stake their tokens to support nodes. Staking rewards offer an additional incentive for token holders to engage in network operations, although the structure may evolve with network growth.

2. Service-Based Node Rewards:

Nodes receive rewards based on specific services they provide to the network, such as:

- Consensus Services: Reaching consensus and maintaining transaction order.
- File Storage: Storing data on the Hedera network.
- Smart Contract Processing: Supporting contract executions for decentralized applications.

Applicable Fees:

1. Predictable Transaction Fees: Hedera's fee structure is fixed and predictable, ensuring transparent costs for users and appealing to enterprise-grade applications. Transaction fees are paid in HBAR and are designed to be stable, making it easier for businesses to plan for usage costs.
2. Fee Allocation: All transaction fees collected in HBAR are distributed to network nodes as rewards, reinforcing their role in maintaining network integrity and processing transactions efficiently.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) base, ethereum, hedera_hbar is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



OMI Token

OMI | 3JJ63T2TQ

Quantitative information

Quantitative sustainability indicators for OMI Token

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	OMI Token	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	123.23185	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Pieverse

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Pieverse	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	122.79935	kWh/a

Qualitative information

S.4 Consensus Mechanism

Pieverse is present on the following networks: Binance Smart Chain, Ethereum.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon

Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Pieverse is present on the following networks: Binance Smart Chain, Ethereum.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to

slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) binance_smart_chain, ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Animecoin

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Animecoin	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	122.50056	kWh/a

Qualitative information

S.4 Consensus Mechanism

Animecoin is present on the following networks: Arbitrum, Ethereum.

Arbitrum is an optimistic rollup that processes transactions on a Layer 2 network and relies on Ethereum for data availability and settlement. A sequencer orders incoming transactions, executes them and publishes compressed transaction batches to Ethereum. Arbitrum nodes can independently reconstruct and verify the resulting Layer 2 state using the transaction data published on the parent chain. Validators submit assertions representing the state of the network. Under the BoLD dispute protocol, conflicting or incorrect assertions may be challenged and resolved through an interactive fraud-proof process on Ethereum. Once an assertion has been confirmed and the applicable challenge process has been completed, the corresponding Layer 2 state is accepted for settlement purposes.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in

certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Animecoin is present on the following networks: Arbitrum, Ethereum.

Transactions on Arbitrum are subject to fees paid in ETH. The total fee generally consists of a Layer 2 execution component, which covers the computational resources required to process the transaction, and a parent-chain data component, which reflects the cost of publishing compressed transaction data to Ethereum. The amount payable therefore depends on the computational complexity of the transaction, the volume and compressibility of its data and the prevailing cost of data publication on Ethereum. Participants that submit or challenge state assertions under the dispute protocol must provide economic bonds. These bonds are intended to discourage incorrect assertions and compensate successful participants in the dispute process. Withdrawals through the canonical bridge become executable after the relevant Layer 2 state has been confirmed and the applicable challenge period has elapsed.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) arbitrum, ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Big Time

TIME | DM8NPMHHW

Quantitative information

Quantitative sustainability indicators for Big Time

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Big Time	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	120.18296	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Enzyme

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Enzyme	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	119.26483	kWh/a

Qualitative information

S.4 Consensus Mechanism

Enzyme is present on the following networks: Ethereum, Polygon.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

Polygon PoS is an EVM-compatible sidechain that operates with a Proof-of-Stake consensus mechanism and periodically submits checkpoints to the Ethereum mainnet. The network maintains its own validator set and processes transactions independently from Ethereum, while using Ethereum smart contracts for staking-related functions and checkpoint verification. Polygon PoS therefore uses Ethereum as a staking and checkpointing layer, but does not rely on Ethereum for full

transaction execution or transaction data availability. The Polygon-side architecture consists of two primary node layers. The Bor layer is responsible for transaction execution and block production. The Heimdall layer is responsible for validator coordination, staking-related monitoring, consensus, and checkpoint finalisation. Heimdall is based on Cosmos SDK and CometBFT and aggregates blocks produced by Bor into periodic Merkle-root checkpoints that are submitted to smart contracts on the Ethereum mainnet. Validators participate in the network by staking POL tokens. Token holders may delegate POL tokens to validators, contributing to the validator's effective stake and participating indirectly in network validation. Following the Rio upgrade, Polygon PoS uses a Validator-Elected Block Producer model. Under this model, validators elect the block producer or block producers for a span, rather than relying on the previous stake-weighted selection model for multiple block producers over shorter intervals. Block production and transaction execution are performed on the Bor layer, while Heimdall validators coordinate consensus and checkpoint finalisation. At regular intervals, Heimdall validators aggregate blocks into a Merkle root and submit the resulting checkpoint to Ethereum smart contracts. These checkpoints provide an additional verification layer and support cross-chain verification, including in the context of asset transfers between Polygon PoS and Ethereum. This design enables higher transaction throughput and lower transaction costs than the Ethereum mainnet, while maintaining a technical connection to Ethereum through staking contracts and periodic checkpointing. Polygon PoS should therefore be understood as an independent sidechain or commit-chain architecture, rather than a rollup that inherits full execution and data availability security from Ethereum.

S.5 Incentive Mechanisms and Applicable Fees

Enzyme is present on the following networks: Ethereum, Polygon.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

Polygon PoS uses economic incentives to support validator participation, transaction processing, and network operation. Validators stake POL tokens and participate in block production, validation, voting, and checkpoint finalisation. Validators may receive rewards connected to their participation in the network, including rewards linked to validation activities and transaction-fee allocation, depending on the applicable protocol rules. Token holders who do not operate validator infrastructure may delegate POL tokens to validators. Delegators may receive a share of rewards attributable to the validator to whom they delegate, subject to the validator's commission and applicable protocol rules. Delegation increases the validator's effective stake and may affect its role in the validator set and related network processes. Following the Rio upgrade, Polygon PoS introduced a Validator-Elected Block Producer model, under which validators elect the block producer or block producers for a span. Publicly described protocol changes associated with this model also provide for redistribution of fees, including maximum extractable value-related fees where applicable, to non-producing validators under the relevant protocol design. This changes the incentive structure

from the previous model in which block production selection was more directly described by reference to stake-weighted producer selection. Polygon PoS includes protocol specifications for validator penalties, including slashing-related concepts. Transactions on Polygon PoS require payment of network fees in POL. Fees apply to ordinary token transfers, smart contract deployment, and smart contract interaction. The amount of fees may vary depending on network demand, transaction complexity, and computational resources required. Because Polygon PoS processes transactions independently from Ethereum, transaction fees are generally designed to be lower than equivalent activity on the Ethereum mainnet, although actual fees may change according to network conditions and protocol parameters.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum, polygon is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Ocean Token

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Ocean Token	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	118.55216	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Quantoz USDQ

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Quantoz USDQ	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	118.41035	kWh/a

Qualitative information

S.4 Consensus Mechanism

Quantoz USDQ is present on the following networks: Algorand, Ethereum, Polygon.

The Algorand blockchain utilizes a consensus mechanism termed Pure Proof-of-Stake (PPoS). Consensus, in this context, describes the method by which blocks are selected and appended to the blockchain. Algorand employs a verifiable random function (VRF) to select leaders who propose blocks for each round.

Upon block proposal, a pseudorandomly selected committee of voters is chosen to evaluate the proposal. If a supermajority of these votes are from honest participants, the block is certified. What makes this algorithm a Pure Proof of Stake is that users are chosen for committees based on the number of algos in their accounts. This system leverages random committee selection to maintain high performance and inclusivity within the network.

The consensus process involves three stages:

1. Propose: A leader proposes a new block.
2. Soft Vote: A committee of voters assesses the proposed block.
3. Certify Vote: Another committee certifies the block if it meets the required honesty threshold.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice

rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

Polygon PoS is an EVM-compatible sidechain that operates with a Proof-of-Stake consensus mechanism and periodically submits checkpoints to the Ethereum mainnet. The network maintains its own validator set and processes transactions independently from Ethereum, while using Ethereum smart contracts for staking-related functions and checkpoint verification. Polygon PoS therefore uses Ethereum as a staking and checkpointing layer, but does not rely on Ethereum for full transaction execution or transaction data availability. The Polygon-side architecture consists of two primary node layers. The Bor layer is responsible for transaction execution and block production. The Heimdall layer is responsible for validator coordination, staking-related monitoring, consensus, and checkpoint finalisation. Heimdall is based on Cosmos SDK and CometBFT and aggregates blocks produced by Bor into periodic Merkle-root checkpoints that are submitted to smart contracts on the Ethereum mainnet. Validators participate in the network by staking POL tokens. Token holders may delegate POL tokens to validators, contributing to the validator's effective stake and participating indirectly in network validation. Following the Rio upgrade, Polygon PoS uses a Validator-Elected Block Producer model. Under this model, validators elect the block producer or block producers for a span, rather than relying on the previous stake-weighted selection model for multiple block producers over shorter intervals. Block production and transaction execution are performed on the Bor layer, while Heimdall validators coordinate consensus and checkpoint finalisation. At regular intervals, Heimdall validators aggregate blocks into a Merkle root and submit the resulting checkpoint to Ethereum smart contracts. These checkpoints provide an additional verification layer and support cross-chain verification, including in the context of asset transfers between Polygon PoS and Ethereum. This design enables higher transaction throughput and lower transaction costs than the Ethereum mainnet, while maintaining a technical connection to Ethereum through staking contracts and periodic checkpointing. Polygon PoS should therefore be understood as an independent sidechain or commit-chain architecture, rather than a rollup that inherits full execution and data availability security from Ethereum.

S.5 Incentive Mechanisms and Applicable Fees

Quantoz USDQ is present on the following networks: Algorand, Ethereum, Polygon.

Algorand's consensus mechanism, Pure Proof-of-Stake (PPoS), relies on the participation of token holders (stakers) to ensure the network's security and integrity:

1. Participation Rewards:

- Staking Rewards: Users who participate in the consensus protocol by staking their ALGO tokens earn rewards. These rewards are distributed periodically and are proportional to the amount of ALGO staked. This incentivizes users to hold and stake their tokens, contributing to network security and stability.
- Node Participation Rewards: Validators, also known as participation nodes, are responsible for proposing and voting on blocks. These nodes receive additional rewards for their active role in maintaining the network.

2. Transaction Fees:

- Flat Fee Model: Algorand employs a flat fee model for transactions, which ensures predictability and simplicity. The standard transaction fee on Algorand is very low (around 0.001 ALGO per transaction). These fees are paid by users to have their transactions processed and included in a block.
- Fee Redistribution: Collected transaction fees are redistributed to participants in the network. This includes stakers and validators, further incentivizing their participation and ensuring continuous network operation.

3. Economic Security:

- Token Locking: To participate in the consensus mechanism, users must lock up their ALGO tokens. This economic stake acts as a security deposit that can be slashed (forfeited) if the participant acts maliciously. The potential loss of staked tokens discourages dishonest behavior and helps maintain network integrity.

Fees on the Algorand Blockchain

1. Transaction Fees:

- Algorand uses a flat transaction fee model. The current standard fee is 0.001 ALGO per transaction. This fee is minimal compared to other blockchain networks, ensuring affordability and accessibility.

2. Smart Contract Execution Fees:

- Fees for executing smart contracts on Algorand are also designed to be low. These fees are based on the computational resources required to execute the contract, ensuring that users are only charged for the actual resources they consume.

3. Asset Creation Fees:

- Creating new assets (tokens) on the Algorand blockchain involves a small fee. This fee is necessary to prevent spam and ensure that only genuine assets are created and maintained on the network.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

Polygon PoS uses economic incentives to support validator participation, transaction processing, and network operation. Validators stake POL tokens and participate in block production, validation, voting, and checkpoint finalisation. Validators may receive rewards connected to their participation in the network, including rewards linked to validation activities and transaction-fee allocation, depending on the applicable protocol rules. Token holders who do not operate validator infrastructure may delegate POL tokens to validators. Delegators may receive a share of rewards attributable to the validator to whom they delegate, subject to the validator's commission and applicable protocol rules. Delegation increases the validator's effective stake and may affect its role in the validator set and related network processes. Following the Rio upgrade, Polygon PoS introduced

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S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) algorand, ethereum, polygon is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Harvest Finance

FARM | /

Quantitative information

Quantitative sustainability indicators for Harvest Finance

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Harvest Finance	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	117.99218	kWh/a

Qualitative information

S.4 Consensus Mechanism

Harvest Finance is present on the following networks: Binance Smart Chain, Ethereum, Polygon.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 "Cabinet" validators and 24 "Candidate" validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon

Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

Polygon PoS is an EVM-compatible sidechain that operates with a Proof-of-Stake consensus mechanism and periodically submits checkpoints to the Ethereum mainnet. The network maintains its own validator set and processes transactions independently from Ethereum, while using Ethereum smart contracts for staking-related functions and checkpoint verification. Polygon PoS therefore uses Ethereum as a staking and checkpointing layer, but does not rely on Ethereum for full transaction execution or transaction data availability. The Polygon-side architecture consists of two primary node layers. The Bor layer is responsible for transaction execution and block production. The Heimdall layer is responsible for validator coordination, staking-related monitoring, consensus, and checkpoint finalisation. Heimdall is based on Cosmos SDK and CometBFT and aggregates blocks produced by Bor into periodic Merkle-root checkpoints that are submitted to smart contracts on the Ethereum mainnet. Validators participate in the network by staking POL tokens. Token holders may delegate POL tokens to validators, contributing to the validator's effective stake and participating indirectly in network validation. Following the Rio upgrade, Polygon PoS uses a Validator-Elected Block Producer model. Under this model, validators elect the block producer or block producers for a span, rather than relying on the previous stake-weighted selection model for multiple block producers over shorter intervals. Block production and transaction execution are performed on the Bor layer, while Heimdall validators coordinate consensus and checkpoint finalisation. At regular intervals, Heimdall validators aggregate blocks into a Merkle root and submit the resulting checkpoint to Ethereum smart contracts. These checkpoints provide an additional verification layer and support cross-chain verification, including in the context of asset transfers between Polygon PoS and Ethereum. This design enables higher transaction throughput and lower transaction costs than the Ethereum mainnet, while maintaining a technical connection to Ethereum through staking contracts and periodic checkpointing. Polygon PoS should therefore be understood as an independent sidechain or commit-chain architecture, rather than a rollup that inherits full execution and data availability security from Ethereum.

S.5 Incentive Mechanisms and Applicable Fees

Harvest Finance is present on the following networks: Binance Smart Chain, Ethereum, Polygon.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are

updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

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S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) binance_smart_chain, ethereum, polygon is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Cap

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Cap	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	117.44213	kWh/a

Qualitative information

S.4 Consensus Mechanism

Cap is present on the following networks: Binance Smart Chain, Ethereum.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon

Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Cap is present on the following networks: Binance Smart Chain, Ethereum.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to

slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) binance_smart_chain, ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Camp Network

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Camp Network	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	116.28321	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Frax Share

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Frax Share	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	115.21053	kWh/a

Qualitative information

S.4 Consensus Mechanism

Frax Share is present on the following networks: Arbitrum, Avalanche, Binance Smart Chain, Ethereum, Fantom, Solana.

Arbitrum is an optimistic rollup that processes transactions on a Layer 2 network and relies on Ethereum for data availability and settlement. A sequencer orders incoming transactions, executes them and publishes compressed transaction batches to Ethereum. Arbitrum nodes can independently reconstruct and verify the resulting Layer 2 state using the transaction data published on the parent chain. Validators submit assertions representing the state of the network. Under the BoLD dispute protocol, conflicting or incorrect assertions may be challenged and resolved through an interactive fraud-proof process on Ethereum. Once an assertion has been confirmed and the applicable challenge process has been completed, the corresponding Layer 2 state is accepted for settlement purposes.

The Avalanche C-Chain uses the Snowman++ consensus mechanism, which is Avalanche's consensus model for linear blockchains and is implemented through the ProposerVM wrapper. Under this model, validators repeatedly query a small random subset of other validators and converge on a preferred block once the required confidence thresholds are met. Only Primary Network validators are entitled to validate the C-Chain. To participate as a validator on Avalanche mainnet, a node must stake a minimum number of token. Token holders may also participate indirectly by delegating an existing validator. Validator identity and admission to staking require the relevant staking credentials, including BLS proofs of possession under the current staking framework. For block production,

Snowman++ uses stake-weighted proposer windows. Through the ProposerVM, block-building opportunities are assigned to proposers in 5-second windows, after which block production may fall back more broadly to validators if necessary. This mechanism is intended to regulate block production while preserving network liveness. Consensus voting itself remains based on repeated sub-sampled polling rather than fixed validator committees. Avalanche documentation describes the finality model as sub-second and treated by the protocol as final and irreversible once accepted, while noting that safety is probabilistic in the formal sense because the probability of conflicting acceptance can be reduced to an arbitrarily low level through the protocol parameters. The protocol does not rely on slashing of staked principal. Instead, validator reward eligibility depends on compliance with protocol conditions, including uptime requirements.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum’s consensus mechanism and Layer 2 functionality.

Fantom operates on the Lachesis Protocol, an Asynchronous Byzantine Fault Tolerant (aBFT) consensus mechanism designed for fast, secure, and scalable transactions.

Core Components of Fantom’s Consensus:

1. Lachesis Protocol (aBFT):

- Asynchronous and Leaderless: Lachesis allows nodes to reach consensus independently without relying on a central leader, enhancing decentralization and speed.
- DAG Structure: Instead of a linear blockchain, Lachesis uses a Directed Acyclic Graph (DAG) structure, allowing multiple transactions to be processed in parallel across nodes. This structure supports high throughput, making the network suitable for applications requiring rapid transaction processing.

2. Event Blocks and Instant Finality:

- Event Blocks: Transactions are grouped into event blocks, which are validated asynchronously by multiple validators. When enough validators confirm an event block, it becomes part of the Fantom network's history.
- Instant Finality: Transactions on Fantom achieve immediate finality, meaning they are confirmed and cannot be reversed. This property is ideal for applications requiring fast and irreversible transactions.

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.

- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.
2. Security:
- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
 - Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.
3. Economic Penalties:
- Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Frax Share is present on the following networks: Arbitrum, Avalanche, Binance Smart Chain, Ethereum, Fantom, Solana.

Transactions on Arbitrum are subject to fees paid in ETH. The total fee generally consists of a Layer 2 execution component, which covers the computational resources required to process the transaction, and a parent-chain data component, which reflects the cost of publishing compressed transaction data to Ethereum. The amount payable therefore depends on the computational complexity of the transaction, the volume and compressibility of its data and the prevailing cost of data publication on Ethereum. Participants that submit or challenge state assertions under the dispute protocol must provide economic bonds. These bonds are intended to discourage incorrect assertions and compensate successful participants in the dispute process. Withdrawals through the canonical bridge become executable after the relevant Layer 2 state has been confirmed and the applicable challenge period has elapsed.

The Avalanche C-Chain is secured economically through the native AVAX token. Validator incentives are based primarily on staking rewards, not on redistribution of C-Chain transaction fees. A fixed amount of 360 million AVAX was minted at genesis, while additional AVAX is minted over time as validator rewards, subject to Avalanche's capped token supply framework. Validator rewards are paid at the end of the staking period and are determined by factors such as the validator's stake and compliance with staking conditions. Unlike some proof-of-stake systems, the Avalanche Primary Network does not use slashing of bonded principal as an ordinary penalty mechanism. Instead, the main protocol-level economic consequence for underperformance is the loss of reward eligibility. Where a validator fails to satisfy the applicable uptime requirement during its staking term, that validator does not receive the corresponding staking reward. Transaction fees apply on the C-Chain for transfers and smart-contract execution. The fee model follows EIP-1559 logic, meaning that transactions are priced through a dynamic base fee mechanism. In contrast to Ethereum's validator tip model, C-Chain transaction fees are burned rather than distributed to validators. This means that C-Chain fees function as a supply-reduction mechanism and are intended in part to offset inflation arising from the minting of validator rewards. In addition to ordinary transaction and smart-contract execution fees, Avalanche documentation also recognises protocol fees in connection with other network operations on other chains of the Primary Network, such as certain import or export operations and staking-related actions. However, for the C-Chain itself, the core applicable fee category is the gas fee for transaction inclusion and contract execution, and those fees are handled through the protocol burn mechanism rather than paid to validators or a treasury.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

Fantom's incentive model promotes network security through staking rewards, transaction fees, and delegation options, encouraging broad participation.

Incentive Mechanisms:

1. Staking Rewards for Validators:

- Earning Rewards in FTM: Validators who participate in the consensus process earn rewards in FTM tokens, proportional to the amount they have staked. This incentivizes validators to actively secure the network.

- Dynamic Staking Rate: Fantom's staking reward rate is dynamic, adjusting based on total FTM staked across the network. As more FTM is staked, individual rewards may decrease, maintaining a balanced reward structure that supports long-term network security.

2. Delegation for Token Holders:

Delegated Staking: Users who do not operate validator nodes can delegate their FTM tokens to validators. In return, they share in the staking rewards, encouraging wider participation in securing the network.

Applicable Fees:

- Transaction Fees in FTM: Users pay transaction fees in FTM tokens. The network's high throughput and DAG structure keep fees low, making Fantom ideal for decentralized applications (dApps) requiring frequent transactions.
- Efficient Fee Model: The low fees and scalability of the network make it cost-effective for users, fostering a favorable environment for high-volume applications.

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.
- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.

2. Delegators:

- Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.

3. Economic Security:

- Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
- Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Fees Applicable on the Solana Blockchain

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.

2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.

3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.

4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) arbitrum, avalanche, binance_smart_chain, ethereum, fantom, solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.


Sentient

SENT | CL5MH7KPZ

Quantitative information

Quantitative sustainability indicators for Sentient

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Sentient	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	114.72332	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

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Quantitative information

Quantitative sustainability indicators for Pstake Finance

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Pstake Finance	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	114.71794	kWh/a

Qualitative information

S.4 Consensus Mechanism

Pstake Finance is present on the following networks: Base, Binance Smart Chain, Ethereum, Optimism, Osmosis, Sui.

Base does not operate its own consensus mechanism or decentralised validator set comparable to a Layer-1 blockchain. As an optimistic rollup Layer-2 network, Base relies on Ethereum's Proof-of-Stake consensus for the finality and settlement of data and state commitments posted to Ethereum Layer 1. Transaction ordering on Base is performed by a sequencer, currently operated by Coinbase. This sequencing function provides transaction ordering and execution on the Layer-2 network but does not constitute a decentralised consensus mechanism. The validity of Layer-2 state transitions is supported by an optimistic fault-proof mechanism, under which incorrect state commitments may be challenged during the applicable dispute period. Accordingly, Base's security model depends on Ethereum Layer 1 for settlement and finality, while Layer-2 transaction ordering remains dependent on the sequencer.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 "Cabinet" validators and 24 "Candidate" validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may

delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

Since Optimism is based on Ethereum, it ultimately inherits its security via the Ethereum blockchain and the proof-of-stake consensus. Within the rollup system, Optimism relies on a "fault proof" procedure. By default, transactions are assumed to be correct ("optimistic"). Only in the event of suspected faults is a fault proof initiated, in which incorrect transactions can be challenged by challengers. This model allows for high efficiency while ensuring correctness.

Osmosis operates on a Proof of Stake (PoS) consensus mechanism, leveraging the Cosmos SDK and Tendermint Core to provide secure, decentralized, and scalable transaction processing.

Core Components:

- Proof of Stake (PoS): Validators are chosen based on the amount of OSMO tokens they stake or are delegated by other token holders. Validators are responsible for validating transactions, producing blocks, and maintaining network security.
- Cosmos SDK and Tendermint Core: Osmosis uses Tendermint Core for Byzantine Fault Tolerant (BFT) consensus, ensuring fast finality and resistance to attacks as long as less than one-third of validators are malicious.
- Decentralized Governance: OSMO token holders can participate in governance by voting on protocol upgrades and network parameters, fostering a community-driven approach to network development.

The Sui blockchain utilizes a Byzantine Fault Tolerant (BFT) consensus mechanism optimized for high throughput and low latency.

Core Components:

1. Mysten Consensus Protocol:

- The Sui consensus is based on Mysten Labs' Byzantine Fault Tolerance (BFT) protocol, which builds on principles of Practical Byzantine Fault Tolerance (pBFT) but introduces key optimizations for performance.

- Leaderless Design: Unlike traditional BFT models, Sui does not rely on a single leader to propose blocks. Validators can propose blocks simultaneously, increasing efficiency and reducing the risks associated with leader failure or attacks.
- Parallel Processing: Transactions can be processed in parallel, maximizing network throughput by utilizing multiple cores and threads. This allows for faster confirmation of transactions and high scalability.

2. Transaction Validation:

Validators are responsible for receiving transaction requests from clients and processing them. Each transaction includes digital signatures and must meet the network's rules to be considered valid. Validators can propose transactions simultaneously, unlike many other networks that require a sequential, leader-driven process.

3. Optimistic Execution:

Optimistic Consensus: Sui allows validators to process certain non-contentious, independent transactions without waiting for full consensus. This is known as optimistic execution and helps reduce transaction latency for many use cases, allowing for fast finality in most cases.

4. Finality and Latency:

The system only requires three rounds of communication between validators to finalize a transaction. This results in low-latency consensus and rapid transaction confirmation times, achieving scalability while maintaining security.

5. Fault Tolerance:

The system can tolerate up to one-third of validators being faulty or malicious without compromising the integrity of the consensus process.

S.5 Incentive Mechanisms and Applicable Fees

Pstake Finance is present on the following networks: Base, Binance Smart Chain, Ethereum, Optimism, Osmosis, Sui.

Base does not have a native protocol token and does not operate a staking, validator reward or token issuance mechanism. Transaction fees on Base are paid in ETH. The economic incentives within the network are primarily related to transaction processing and network security. Transactions are executed on Base and periodically submitted to Ethereum Layer 1 in batches. As the cost of a Layer-1 submission is shared among multiple Layer-2 transactions, the average transaction cost per transaction may be lower than executing the same transactions directly on Ethereum Layer 1. The integrity of withdrawals from Base is supported by a fault-proof mechanism. Withdrawals are subject to a dispute period during which participants may challenge incorrect state commitments. The dispute process incorporates economic incentives intended to encourage honest behaviour and discourage invalid claims.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for

misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

Optimism charges lower transaction fees than Ethereum Layer 1, as transactions are bundled in the rollup and written to the Ethereum main chain in compressed form. Gas fees on Optimism continue to be paid in ETH. The incentive model is based on increased efficiency for users (lower fees, faster confirmation) and on the role of sequencers. Sequencers are central actors who collect, organize, and include transactions in the rollup. Their revenue comes from the gas fees they charge.

Osmosis incentivizes validators, delegators, and liquidity providers through a combination of staking rewards, transaction fees, and liquidity incentives.

Incentive Mechanisms:

- Validator Rewards: Validators earn rewards from transaction fees and block rewards, distributed in OSMO tokens, for their role in securing the network and processing transactions. Delegators who stake their OSMO tokens with validators receive a share of these rewards.
- Liquidity Provider Rewards: Users providing liquidity to Osmosis pools earn swap fees and may receive additional incentives in the form of OSMO tokens to encourage liquidity provision.
- Superfluid Staking: Liquidity providers can participate in superfluid staking, staking a portion of their OSMO tokens within liquidity pools. This mechanism allows users to earn staking rewards while maintaining liquidity in the pools

Applicable Fees:

Transaction Fees: Users pay transaction fees in OSMO tokens for network activities, including swaps, staking, and governance participation. These fees are distributed to validators and delegators, incentivizing their continued participation and support for network security.

Security and Economic Incentives:

1. Validators:

Validators stake SUI tokens to participate in the consensus process. They earn rewards for validating transactions and securing the network.

2. Slashing:

Validators can be penalized (slashed) for malicious behavior, such as double-signing or failing to properly validate transactions. This helps maintain network security and incentivizes honest behavior.

3. Delegation:

Token holders can delegate their SUI tokens to trusted validators. In return, they share in the rewards earned by validators. This encourages widespread participation in securing the network.

Fees on the SUI Blockchain:

1. Transaction Fees:

Users pay transaction fees to validators for processing and confirming transactions. These fees are calculated based on the computational resources required to process the transaction. Fees are paid in SUI tokens, which is the native cryptocurrency of the Sui blockchain.

2. Dynamic Fee Model:

The transaction fees on Sui are dynamic, meaning they adjust based on network demand and the complexity of the transactions being processed.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) base, binance_smart_chain, ethereum, optimism, osmosis, sui is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Orderly Network

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Orderly Network	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	112.73799	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Brevis

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Brevis	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	109.84312	kWh/a

Qualitative information

S.4 Consensus Mechanism

Brevis is present on the following networks: Base, Binance Smart Chain, Ethereum.

Base does not operate its own consensus mechanism or decentralised validator set comparable to a Layer-1 blockchain. As an optimistic rollup Layer-2 network, Base relies on Ethereum's Proof-of-Stake consensus for the finality and settlement of data and state commitments posted to Ethereum Layer 1. Transaction ordering on Base is performed by a sequencer, currently operated by Coinbase. This sequencing function provides transaction ordering and execution on the Layer-2 network but does not constitute a decentralised consensus mechanism. The validity of Layer-2 state transitions is supported by an optimistic fault-proof mechanism, under which incorrect state commitments may be challenged during the applicable dispute period. Accordingly, Base's security model depends on Ethereum Layer 1 for settlement and finality, while Layer-2 transaction ordering remains dependent on the sequencer.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 "Cabinet" validators and 24 "Candidate" validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by

validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Brevis is present on the following networks: Base, Binance Smart Chain, Ethereum.

Base does not have a native protocol token and does not operate a staking, validator reward or token issuance mechanism. Transaction fees on Base are paid in ETH. The economic incentives within the network are primarily related to transaction processing and network security. Transactions are executed on Base and periodically submitted to Ethereum Layer 1 in batches. As the cost of a Layer-1 submission is shared among multiple Layer-2 transactions, the average transaction cost per transaction may be lower than executing the same transactions directly on Ethereum Layer 1. The integrity of withdrawals from Base is supported by a fault-proof mechanism. Withdrawals are subject to a dispute period during which participants may challenge incorrect state commitments. The dispute process incorporates economic incentives intended to encourage honest behaviour and discourage invalid claims.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The

staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) base, binance_smart_chain, ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Moca

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Moca	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	109.54730	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Obol

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Obol	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	107.77469	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Synapse

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Synapse	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	107.24277	kWh/a

Qualitative information

S.4 Consensus Mechanism

Synapse is present on the following networks: Arbitrum, Aurora, Avalanche, Binance Smart Chain, Boba Network, Ethereum, Fantom, Harmony One, Moonriver, Optimism, Polygon.

Arbitrum is an optimistic rollup that processes transactions on a Layer 2 network and relies on Ethereum for data availability and settlement. A sequencer orders incoming transactions, executes them and publishes compressed transaction batches to Ethereum. Arbitrum nodes can independently reconstruct and verify the resulting Layer 2 state using the transaction data published on the parent chain. Validators submit assertions representing the state of the network. Under the BoLD dispute protocol, conflicting or incorrect assertions may be challenged and resolved through an interactive fraud-proof process on Ethereum. Once an assertion has been confirmed and the applicable challenge process has been completed, the corresponding Layer 2 state is accepted for settlement purposes.

Aurora functions as an Ethereum Virtual Machine (EVM) compatible environment operating atop the NEAR Protocol. It does not possess an independent consensus mechanism but relies on NEAR's Proof-of-Stake (PoS) consensus for transaction validation and network security.

The Avalanche C-Chain uses the Snowman++ consensus mechanism, which is Avalanche's consensus model for linear blockchains and is implemented through the ProposerVM wrapper. Under this model, validators repeatedly query a small random subset of other validators and converge on a preferred block once the required confidence thresholds are met. Only Primary Network validators

are entitled to validate the C-Chain. To participate as a validator on Avalanche mainnet, a node must stake a minimum number of token. Token holders may also participate indirectly by delegating an existing validator. Validator identity and admission to staking require the relevant staking credentials, including BLS proofs of possession under the current staking framework. For block production, Snowman++ uses stake-weighted proposer windows. Through the ProposerVM, block-building opportunities are assigned to proposers in 5-second windows, after which block production may fall back more broadly to validators if necessary. This mechanism is intended to regulate block production while preserving network liveness. Consensus voting itself remains based on repeated sub-sampled polling rather than fixed validator committees. Avalanche documentation describes the finality model as sub-second and treated by the protocol as final and irreversible once accepted, while noting that safety is probabilistic in the formal sense because the probability of conflicting acceptance can be reduced to an arbitrarily low level through the protocol parameters. The protocol does not rely on slashing of staked principal. Instead, validator reward eligibility depends on compliance with protocol conditions, including uptime requirements.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Boba Network operates as an Ethereum Layer 2 solution using an Optimistic Rollup architecture to improve scalability and reduce transaction costs.

Core Components:

- Optimistic Rollup: Processes transactions off-chain, aggregates them, and submits condensed proofs to the Ethereum mainnet for finalization.
- Sequencer Role: A sequencer organizes and bundles transactions off-chain before submitting the batched data to Ethereum. This enhances transaction throughput and reduces latency.
- Fraud Proofs: Maintains security by allowing users to challenge suspicious transactions. If a transaction is deemed fraudulent, it is corrected on the mainnet, ensuring integrity.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to

slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

Fantom operates on the Lachesis Protocol, an Asynchronous Byzantine Fault Tolerant (aBFT) consensus mechanism designed for fast, secure, and scalable transactions.

Core Components of Fantom's Consensus:

1. Lachesis Protocol (aBFT):

- Asynchronous and Leaderless: Lachesis allows nodes to reach consensus independently without relying on a central leader, enhancing decentralization and speed.
- DAG Structure: Instead of a linear blockchain, Lachesis uses a Directed Acyclic Graph (DAG) structure, allowing multiple transactions to be processed in parallel across nodes. This structure supports high throughput, making the network suitable for applications requiring rapid transaction processing.

2. Event Blocks and Instant Finality:

- Event Blocks: Transactions are grouped into event blocks, which are validated asynchronously by multiple validators. When enough validators confirm an event block, it becomes part of the Fantom network's history.
- Instant Finality: Transactions on Fantom achieve immediate finality, meaning they are confirmed and cannot be reversed. This property is ideal for applications requiring fast and irreversible transactions.

Harmony operates on a consensus mechanism called Effective Proof of Stake (EPoS), designed to balance validator influence and enhance network security while improving transaction scalability.

Core Components:

1. Effective Proof of Stake (EPoS):

- Validator Diversity: EPoS allows a large number of validators to participate and limits the influence of high-stake validators, promoting decentralization and preventing stake centralization.
- Staking Across Shards: Multiple validators compete within each shard, distributing staking power more broadly and enhancing network security.

2. Sharding with PBFT Finality:

- Parallel Transaction Processing: Harmony's four shards enable independent processing of transactions and smart contracts, enhancing scalability and throughput.
- Fast Finality with PBFT: Each shard uses a modified Practical Byzantine Fault Tolerance (PBFT) model, ensuring immediate finality once blocks are validated and achieving high transaction speeds.

Moonriver operates on a Proof of Stake (PoS) consensus mechanism, enhanced by Polkadot's Nominated Proof of Stake (NPoS) model. This structure ensures secure, scalable, and decentralized transaction processing, leveraging the robust Substrate framework.

Core Components:

- Nominated Proof of Stake (NPoS):

Validators are selected through staking by token holders, known as nominators, who delegate their MOVR tokens to trusted validator nodes. Validators with higher stakes and nominations are chosen to validate blocks and secure the network.

- Collator Nodes:

Moonriver employs collator nodes, responsible for aggregating transactions into blocks and submitting them to the Polkadot Relay Chain for final validation. Collators ensure fast block production while relying on Polkadot's shared security.

- Byzantine Fault Tolerance (BFT):

Moonriver integrates BFT properties to handle network disruptions and maintain consensus even if some validators act maliciously or become unavailable.

- Seamless Interoperability:

As a parachain within the Polkadot ecosystem, Moonriver benefits from Polkadot's cross-chain messaging protocols, enabling secure and efficient interoperability with other parachains and external blockchains.

Since Optimism is based on Ethereum, it ultimately inherits its security via the Ethereum blockchain and the proof-of-stake consensus. Within the rollup system, Optimism relies on a "fault proof" procedure. By default, transactions are assumed to be correct ("optimistic"). Only in the event of suspected faults is a fault proof initiated, in which incorrect transactions can be challenged by challengers. This model allows for high efficiency while ensuring correctness.

Polygon PoS is an EVM-compatible sidechain that operates with a Proof-of-Stake consensus mechanism and periodically submits checkpoints to the Ethereum mainnet. The network maintains its own validator set and processes transactions independently from Ethereum, while using Ethereum smart contracts for staking-related functions and checkpoint verification. Polygon PoS therefore uses Ethereum as a staking and checkpointing layer, but does not rely on Ethereum for full transaction execution or transaction data availability. The Polygon-side architecture consists of two primary node layers. The Bor layer is responsible for transaction execution and block production. The Heimdall layer is responsible for validator coordination, staking-related monitoring, consensus, and checkpoint finalisation. Heimdall is based on Cosmos SDK and CometBFT and aggregates blocks produced by Bor into periodic Merkle-root checkpoints that are submitted to smart contracts on the Ethereum mainnet. Validators participate in the network by staking POL tokens. Token holders may delegate POL tokens to validators, contributing to the validator's effective stake and participating indirectly in network validation. Following the Rio upgrade, Polygon PoS uses a Validator-Elected Block Producer model. Under this model, validators elect the block producer or block producers for a span, rather than relying on the previous stake-weighted selection model for multiple block producers over shorter intervals. Block production and transaction execution are performed on the Bor layer, while Heimdall validators coordinate consensus and checkpoint finalisation. At regular intervals, Heimdall validators aggregate blocks into a Merkle root and submit the resulting checkpoint to Ethereum smart contracts. These checkpoints provide an additional verification layer and support cross-chain verification, including in the context of asset transfers between Polygon PoS and Ethereum. This design enables higher transaction throughput and lower transaction costs than the Ethereum mainnet, while maintaining a technical connection to Ethereum through staking contracts and periodic checkpointing. Polygon PoS should therefore be understood as an independent sidechain or commit-chain architecture, rather than a rollup that inherits full execution and data availability security from Ethereum.

S.5 Incentive Mechanisms and Applicable Fees

Synapse is present on the following networks: Arbitrum, Aurora, Avalanche, Binance Smart Chain, Boba Network, Ethereum, Fantom, Harmony One, Moonriver, Optimism, Polygon.

Transactions on Arbitrum are subject to fees paid in ETH. The total fee generally consists of a Layer 2 execution component, which covers the computational resources required to process the transaction, and a parent-chain data component, which reflects the cost of publishing compressed

transaction data to Ethereum. The amount payable therefore depends on the computational complexity of the transaction, the volume and compressibility of its data and the prevailing cost of data publication on Ethereum. Participants that submit or challenge state assertions under the dispute protocol must provide economic bonds. These bonds are intended to discourage incorrect assertions and compensate successful participants in the dispute process. Withdrawals through the canonical bridge become executable after the relevant Layer 2 state has been confirmed and the applicable challenge period has elapsed.

The Aurora network utilizes the AURORA token for governance and staking purposes. Token holders can participate in network governance through the AuroraDAO, influencing protocol decisions and developments.

The Avalanche C-Chain is secured economically through the native AVAX token. Validator incentives are based primarily on staking rewards, not on redistribution of C-Chain transaction fees. A fixed amount of 360 million AVAX was minted at genesis, while additional AVAX is minted over time as validator rewards, subject to Avalanche's capped token supply framework. Validator rewards are paid at the end of the staking period and are determined by factors such as the validator's stake and compliance with staking conditions. Unlike some proof-of-stake systems, the Avalanche Primary Network does not use slashing of bonded principal as an ordinary penalty mechanism. Instead, the main protocol-level economic consequence for underperformance is the loss of reward eligibility. Where a validator fails to satisfy the applicable uptime requirement during its staking term, that validator does not receive the corresponding staking reward. Transaction fees apply on the C-Chain for transfers and smart-contract execution. The fee model follows EIP-1559 logic, meaning that transactions are priced through a dynamic base fee mechanism. In contrast to Ethereum's validator tip model, C-Chain transaction fees are burned rather than distributed to validators. This means that C-Chain fees function as a supply-reduction mechanism and are intended in part to offset inflation arising from the minting of validator rewards. In addition to ordinary transaction and smart-contract execution fees, Avalanche documentation also recognises protocol fees in connection with other network operations on other chains of the Primary Network, such as certain import or export operations and staking-related actions. However, for the C-Chain itself, the core applicable fee category is the gas fee for transaction inclusion and contract execution, and those fees are handled through the protocol burn mechanism rather than paid to validators or a treasury.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee

network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

The Boba Network incentivizes participation and ensures affordability with flexible fee payment options and staking rewards.

Incentive Mechanisms:

- Staking Rewards: BOBA token holders can stake their tokens to participate in governance and earn staking rewards, encouraging long-term engagement and network growth.
- Sequencer Revenue: The sequencer earns fees for bundling and submitting transactions, incentivizing efficient network operation.

Applicable Fees:

- Dual-Fee Token System: Users can pay transaction fees in BOBA tokens or the base blockchain token (e.g., ETH), offering flexibility.
- Low Transaction Costs: By batching transactions off-chain, Boba significantly reduces the gas fees users pay compared to directly using the Ethereum mainnet.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

Fantom's incentive model promotes network security through staking rewards, transaction fees, and delegation options, encouraging broad participation.

Incentive Mechanisms:

1. Staking Rewards for Validators:

- Earning Rewards in FTM: Validators who participate in the consensus process earn rewards in FTM tokens, proportional to the amount they have staked. This incentivizes validators to actively secure the network.
- Dynamic Staking Rate: Fantom's staking reward rate is dynamic, adjusting based on total FTM staked across the network. As more FTM is staked, individual rewards may decrease, maintaining a balanced reward structure that supports long-term network security.

2. Delegation for Token Holders:

Delegated Staking: Users who do not operate validator nodes can delegate their FTM tokens to validators. In return, they share in the staking rewards, encouraging wider participation in securing the network.

Applicable Fees:

- Transaction Fees in FTM: Users pay transaction fees in FTM tokens. The network's high throughput and DAG structure keep fees low, making Fantom ideal for decentralized applications (dApps) requiring frequent transactions.
- Efficient Fee Model: The low fees and scalability of the network make it cost-effective for users, fostering a favorable environment for high-volume applications.

Harmony incentivizes validators and delegators to participate in network security and performance through staking rewards, transaction fees, and a unique reward structure promoting decentralization.

Incentive Mechanisms:

1. Staking Rewards for Validators and Delegators:

ONE Token Rewards: Validators earn ONE tokens for validating transactions and securing the network, with a share of these rewards distributed to delegators based on the amount staked.

2. Decentralization Penalty for High Stake:

Reward Adjustment for Large Stakeholders: Validators with an excessive delegated stake experience reduced rewards, preventing centralization and encouraging a fair distribution of staking power.

Applicable Fees:

1. Transaction Fees:

Harmony charges minimal transaction fees in ONE tokens, benefiting high-frequency applications and providing validators with additional rewards.

Moonriver's incentive model ensures active participation from validators, nominators, and developers while maintaining network security and usability.

Incentive Mechanisms:

- Staking Rewards: Validators and nominators earn MOVR tokens for securing the network and validating transactions.
- Collator Rewards: Collators, who propose blocks, are rewarded with MOVR tokens.
- Inflationary Rewards: New MOVR tokens are minted to fund staking and ecosystem development.
- Developer Incentives: A portion of rewards supports dApp development and ecosystem growth.

Applicable Fees:

- Transaction Fees: Paid in MOVR for transfers and smart contract interactions, distributed to validators and collators.
- Gas Fees: Calculated based on transaction complexity, ensuring predictable costs.
- Fee Burning: A portion of fees is burned, reducing token supply over time to support value retention.

Optimism charges lower transaction fees than Ethereum Layer 1, as transactions are bundled in the rollup and written to the Ethereum main chain in compressed form. Gas fees on Optimism continue

to be paid in ETH. The incentive model is based on increased efficiency for users (lower fees, faster confirmation) and on the role of sequencers. Sequencers are central actors who collect, organize, and include transactions in the rollup. Their revenue comes from the gas fees they charge.

Polygon PoS uses economic incentives to support validator participation, transaction processing, and network operation. Validators stake POL tokens and participate in block production, validation, voting, and checkpoint finalisation. Validators may receive rewards connected to their participation in the network, including rewards linked to validation activities and transaction-fee allocation, depending on the applicable protocol rules. Token holders who do not operate validator infrastructure may delegate POL tokens to validators. Delegators may receive a share of rewards attributable to the validator to whom they delegate, subject to the validator's commission and applicable protocol rules. Delegation increases the validator's effective stake and may affect its role in the validator set and related network processes. Following the Rio upgrade, Polygon PoS introduced a Validator-Elected Block Producer model, under which validators elect the block producer or block producers for a span. Publicly described protocol changes associated with this model also provide for redistribution of fees, including maximum extractable value-related fees where applicable, to non-producing validators under the relevant protocol design. This changes the incentive structure from the previous model in which block production selection was more directly described by reference to stake-weighted producer selection. Polygon PoS includes protocol specifications for validator penalties, including slashing-related concepts. Transactions on Polygon PoS require payment of network fees in POL. Fees apply to ordinary token transfers, smart contract deployment, and smart contract interaction. The amount of fees may vary depending on network demand, transaction complexity, and computational resources required. Because Polygon PoS processes transactions independently from Ethereum, transaction fees are generally designed to be lower than equivalent activity on the Ethereum mainnet, although actual fees may change according to network conditions and protocol parameters.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) arbitrum, aurora, avalanche, binance_smart_chain, boba_network, ethereum, fantom, harmony_one, moonriver, optimism, polygon is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Aligned

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Aligned	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	107.16179	kWh/a

Qualitative information

S.4 Consensus Mechanism

Aligned is present on the following networks: Base, Ethereum.

Base does not operate its own consensus mechanism or decentralised validator set comparable to a Layer-1 blockchain. As an optimistic rollup Layer-2 network, Base relies on Ethereum's Proof-of-Stake consensus for the finality and settlement of data and state commitments posted to Ethereum Layer 1. Transaction ordering on Base is performed by a sequencer, currently operated by Coinbase. This sequencing function provides transaction ordering and execution on the Layer-2 network but does not constitute a decentralised consensus mechanism. The validity of Layer-2 state transitions is supported by an optimistic fault-proof mechanism, under which incorrect state commitments may be challenged during the applicable dispute period. Accordingly, Base's security model depends on Ethereum Layer 1 for settlement and finality, while Layer-2 transaction ordering remains dependent on the sequencer.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the

canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Aligned is present on the following networks: Base, Ethereum.

Base does not have a native protocol token and does not operate a staking, validator reward or token issuance mechanism. Transaction fees on Base are paid in ETH. The economic incentives within the network are primarily related to transaction processing and network security. Transactions are executed on Base and periodically submitted to Ethereum Layer 1 in batches. As the cost of a Layer-1 submission is shared among multiple Layer-2 transactions, the average transaction cost per transaction may be lower than executing the same transactions directly on Ethereum Layer 1. The integrity of withdrawals from Base is supported by a fault-proof mechanism. Withdrawals are subject to a dispute period during which participants may challenge incorrect state commitments. The dispute process incorporates economic incentives intended to encourage honest behaviour and discourage invalid claims.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) base, ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Coq Inu
COQ | 6KJB18HSF

Quantitative information

Quantitative sustainability indicators for Coq Inu

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Coq Inu	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	106.25958	kWh/a

Qualitative information

S.4 Consensus Mechanism

The Avalanche C-Chain uses the Snowman++ consensus mechanism, which is Avalanche's consensus model for linear blockchains and is implemented through the ProposerVM wrapper. Under this model, validators repeatedly query a small random subset of other validators and converge on a preferred block once the required confidence thresholds are met. Only Primary Network validators are entitled to validate the C-Chain. To participate as a validator on Avalanche mainnet, a node must stake a minimum number of token. Token holders may also participate indirectly by delegating an existing validator. Validator identity and admission to staking require the relevant staking credentials, including BLS proofs of possession under the current staking framework. For block production, Snowman++ uses stake-weighted proposer windows. Through the ProposerVM, block-building opportunities are assigned to proposers in 5-second windows, after which block production may fall back more broadly to validators if necessary. This mechanism is intended to regulate block production while preserving network liveness. Consensus voting itself remains based on repeated sub-sampled polling rather than fixed validator committees. Avalanche documentation describes the finality model as sub-second and treated by the protocol as final and irreversible once accepted, while noting that safety is probabilistic in the formal sense because the probability of conflicting acceptance can be reduced to an arbitrarily low level through the protocol parameters. The protocol does not rely on slashing of staked principal. Instead, validator reward eligibility depends on compliance with protocol conditions, including uptime requirements.

S.5 Incentive Mechanisms and Applicable Fees

The Avalanche C-Chain is secured economically through the native AVAX token. Validator incentives are based primarily on staking rewards, not on redistribution of C-Chain transaction fees. A fixed amount of 360 million AVAX was minted at genesis, while additional AVAX is minted over time as validator rewards, subject to Avalanche's capped token supply framework. Validator rewards are paid at the end of the staking period and are determined by factors such as the validator's stake and compliance with staking conditions. Unlike some proof-of-stake systems, the Avalanche Primary Network does not use slashing of bonded principal as an ordinary penalty mechanism. Instead, the main protocol-level economic consequence for underperformance is the loss of reward eligibility. Where a validator fails to satisfy the applicable uptime requirement during its staking term, that validator does not receive the corresponding staking reward. Transaction fees apply on the C-Chain for transfers and smart-contract execution. The fee model follows EIP-1559 logic, meaning that transactions are priced through a dynamic base fee mechanism. In contrast to Ethereum's validator tip model, C-Chain transaction fees are burned rather than distributed to validators. This means that C-Chain fees function as a supply-reduction mechanism and are intended in part to offset inflation arising from the minting of validator rewards. In addition to ordinary transaction and smart-contract execution fees, Avalanche documentation also recognises protocol fees in connection with other network operations on other chains of the Primary Network, such as certain import or export operations and staking-related actions. However, for the C-Chain itself, the core applicable fee category is the gas fee for transaction inclusion and contract execution, and those fees are handled through the protocol burn mechanism rather than paid to validators or a treasury.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) avalanche is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.


AINFT

NFT | 4MH0C4BL6

Quantitative information

Quantitative sustainability indicators for AINFT

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	AINFT	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	104.22777	kWh/a

Qualitative information

S.4 Consensus Mechanism

AINFT is present on the following networks: Binance Smart Chain, Ethereum, Huobi, Tron.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon

Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

The Huobi Eco Chain (HECO) blockchain employs a Hybrid-Proof-of-Stake (HPoS) consensus mechanism, combining elements of Proof-of-Stake (PoS) to enhance transaction efficiency and scalability.

Key Features of HECO's Consensus Mechanism:

1. Validator Selection: HECO supports up to 21 validators, selected based on their stake in the network.
2. Transaction Processing: Validators are responsible for processing transactions and adding blocks to the blockchain.
3. Transaction Finality: The consensus mechanism ensures quick finality, allowing for rapid confirmation of transactions.
4. Energy Efficiency: By utilizing PoS elements, HECO reduces energy consumption compared to traditional Proof-of-Work systems.

The Tron blockchain operates on a Delegated Proof of Stake (DPoS) consensus mechanism, designed to improve scalability, transaction speed, and energy efficiency.

Core Components:

1. Delegated Proof of Stake (DPoS): Tron uses DPoS, where token holders vote for a group of delegates known as Super Representatives (SRs) who are responsible for validating transactions and producing new blocks on the network. Token holders can vote for SRs based on their stake in the Tron network, and the top 27 SRs (or more, depending on the protocol version) are selected to participate in the block production process. SRs take turns producing blocks, which are added to the blockchain. This is done on a rotational basis to ensure decentralization and prevent control by a small group of validators.
2. Block Production: The Super Representatives generate new blocks and confirm transactions. The Tron blockchain achieves block finality quickly, with block production occurring every 3 seconds, making it highly efficient and capable of processing thousands of transactions per second.
3. Voting and Governance: Tron's DPoS system also allows token holders to vote on important network decisions, such as protocol upgrades and changes to the system's parameters. Voting power is proportional to the amount of TRX (Tron's native token) that a user holds and chooses to stake. This provides a governance system where the community can actively participate in decision-making.
4. Super Representatives: The Super Representatives play a crucial role in maintaining the security and stability of the Tron blockchain. They are responsible for validating transactions, proposing new blocks, and ensuring the overall functionality of the network. Super Representatives are incentivized with block rewards (newly minted TRX tokens) and transaction fees for their work.

S.5 Incentive Mechanisms and Applicable Fees

AINFT is present on the following networks: Binance Smart Chain, Ethereum, Huobi, Tron.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

The Huobi Eco Chain (HECO) blockchain employs a Hybrid-Proof-of-Stake (HPoS) consensus mechanism, combining elements of Proof-of-Stake (PoS) to enhance transaction efficiency and scalability.

Incentive Mechanism:

1. Validator Rewards:

Validators are selected based on their stake in the network. They process transactions and add blocks to the blockchain. Validators receive rewards in the form of transaction fees for their role in maintaining the blockchain's integrity.

2. Staking Participation:

Users can stake Huobi Token (HT) to become validators or delegate their tokens to existing validators. Staking helps secure the network and, in return, participants receive a portion of the transaction fees as rewards.

Applicable Fees:

1. Transaction Fees (Gas Fees):

Users pay gas fees in HT tokens to execute transactions and interact with smart contracts on the HECO network. These fees compensate validators for processing and validating transactions.

2. Smart Contract Execution Fees:

Deploying and interacting with smart contracts incur additional fees, which are also paid in HT tokens. These fees cover the computational resources required to execute contract code.

The Tron blockchain uses a Delegated Proof of Stake (DPoS) consensus mechanism to secure its network and incentivize participation.

Incentive Mechanism:

1. Super Representatives (SRs) Rewards:

- Block Rewards: Super Representatives (SRs), who are elected by TRX holders, are rewarded for producing blocks. Each block they produce comes with a block reward in the form of TRX tokens.
- Transaction Fees: In addition to block rewards, SRs receive transaction fees for validating transactions and including them in blocks. This ensures they are incentivized to process transactions efficiently.

2. Voting and Delegation:

- TRX Staking: TRX holders can stake their tokens and vote for Super Representatives (SRs). When TRX holders vote, they delegate their voting power to SRs, which allows SRs to earn rewards in the form of newly minted TRX tokens.
- Delegator Rewards: Token holders who delegate their votes to an SR can also receive a share of the rewards. This means delegators share in the block rewards and transaction fees that the SR earns.
- Incentivizing Participation: The more tokens a user stakes, the more voting power they have, which encourages participation in governance and network security.

3. Incentive for SRs:

SRs are also incentivized to maintain the health and performance of the network. Their reputation and continued election depend on their ability to produce blocks consistently and efficiently process transactions.

Applicable Fees:

1. Transaction Fees:

- Fee Calculation: Users must pay transaction fees to have their transactions processed. The transaction fee varies based on the complexity of the transaction and the network's current demand. This is paid in TRX tokens. Transaction
- Fee Distribution: Transaction fees are distributed to Super Representatives (SRs), giving them an ongoing income to maintain and support the network.

2. Storage Fees:

Tron charges storage fees for data storage on the blockchain. This includes storing smart contracts, tokens, and other data on the network. Users are required to pay these fees in TRX tokens to store data.

3. Energy and Bandwidth:

Energy: Tron uses a resource model that allows users to access network resources like bandwidth and energy through staking. Users who stake their TRX tokens receive \energy

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) binance_smart_chain, ethereum, huobi, tron is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Space and Time

SXT | QSTZK3PLV

Quantitative information

Quantitative sustainability indicators for Space and Time

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Space and Time	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	102.66957	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.


USD.AI

CHIP | 6FNTLPHG8

Quantitative information

Quantitative sustainability indicators for USD.AI

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	USD.AI	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	102.64288	kWh/a

Qualitative information

S.4 Consensus Mechanism

Arbitrum is an optimistic rollup that processes transactions on a Layer 2 network and relies on Ethereum for data availability and settlement. A sequencer orders incoming transactions, executes them and publishes compressed transaction batches to Ethereum. Arbitrum nodes can independently reconstruct and verify the resulting Layer 2 state using the transaction data published on the parent chain. Validators submit assertions representing the state of the network. Under the BoLD dispute protocol, conflicting or incorrect assertions may be challenged and resolved through an interactive fraud-proof process on Ethereum. Once an assertion has been confirmed and the applicable challenge process has been completed, the corresponding Layer 2 state is accepted for settlement purposes.

S.5 Incentive Mechanisms and Applicable Fees

Transactions on Arbitrum are subject to fees paid in ETH. The total fee generally consists of a Layer 2 execution component, which covers the computational resources required to process the transaction, and a parent-chain data component, which reflects the cost of publishing compressed transaction data to Ethereum. The amount payable therefore depends on the computational complexity of the transaction, the volume and compressibility of its data and the prevailing cost of data publication on Ethereum. Participants that submit or challenge state assertions under the dispute protocol must provide economic bonds. These bonds are intended to discourage incorrect assertions and compensate successful participants in the dispute process. Withdrawals through the

canonical bridge become executable after the relevant Layer 2 state has been confirmed and the applicable challenge period has elapsed.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) arbitrum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



DoubleZero

2Z | /

Quantitative information

Quantitative sustainability indicators for DoubleZero

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	DoubleZero	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	102.19921	kWh/a

Qualitative information

S.4 Consensus Mechanism

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.

- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.
- 2. Delegators:
 - Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.
- 3. Economic Security:
 - Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
 - Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.
2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.
3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.
4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Hashflow

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Hashflow	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	102.10233	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

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Quantitative information

Quantitative sustainability indicators for OriginToken

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	OriginToken	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	100.82606	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

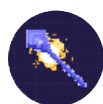
Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

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S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Spell Token

SPELL | 2D7W0LVCF

Quantitative information

Quantitative sustainability indicators for Spell Token

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Spell Token	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	99.18277	kWh/a

Qualitative information

S.4 Consensus Mechanism

Spell Token is present on the following networks: Arbitrum, Avalanche, Ethereum, Fantom.

Arbitrum is an optimistic rollup that processes transactions on a Layer 2 network and relies on Ethereum for data availability and settlement. A sequencer orders incoming transactions, executes them and publishes compressed transaction batches to Ethereum. Arbitrum nodes can independently reconstruct and verify the resulting Layer 2 state using the transaction data published on the parent chain. Validators submit assertions representing the state of the network. Under the BoLD dispute protocol, conflicting or incorrect assertions may be challenged and resolved through an interactive fraud-proof process on Ethereum. Once an assertion has been confirmed and the applicable challenge process has been completed, the corresponding Layer 2 state is accepted for settlement purposes.

The Avalanche C-Chain uses the Snowman++ consensus mechanism, which is Avalanche's consensus model for linear blockchains and is implemented through the ProposerVM wrapper. Under this model, validators repeatedly query a small random subset of other validators and converge on a preferred block once the required confidence thresholds are met. Only Primary Network validators are entitled to validate the C-Chain. To participate as a validator on Avalanche mainnet, a node must stake a minimum number of token. Token holders may also participate indirectly by delegating an existing validator. Validator identity and admission to staking require the relevant staking credentials, including BLS proofs of possession under the current staking framework. For block production, Snowman++ uses stake-weighted proposer windows. Through the ProposerVM, block-building

opportunities are assigned to proposers in 5-second windows, after which block production may fall back more broadly to validators if necessary. This mechanism is intended to regulate block production while preserving network liveness. Consensus voting itself remains based on repeated sub-sampled polling rather than fixed validator committees. Avalanche documentation describes the finality model as sub-second and treated by the protocol as final and irreversible once accepted, while noting that safety is probabilistic in the formal sense because the probability of conflicting acceptance can be reduced to an arbitrarily low level through the protocol parameters. The protocol does not rely on slashing of staked principal. Instead, validator reward eligibility depends on compliance with protocol conditions, including uptime requirements.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

Fantom operates on the Lachesis Protocol, an Asynchronous Byzantine Fault Tolerant (aBFT) consensus mechanism designed for fast, secure, and scalable transactions.

Core Components of Fantom's Consensus:

1. Lachesis Protocol (aBFT):

- Asynchronous and Leaderless: Lachesis allows nodes to reach consensus independently without relying on a central leader, enhancing decentralization and speed.
- DAG Structure: Instead of a linear blockchain, Lachesis uses a Directed Acyclic Graph (DAG) structure, allowing multiple transactions to be processed in parallel across nodes. This structure supports high throughput, making the network suitable for applications requiring rapid transaction processing.

2. Event Blocks and Instant Finality:

- Event Blocks: Transactions are grouped into event blocks, which are validated asynchronously by multiple validators. When enough validators confirm an event block, it becomes part of the Fantom network's history.
- Instant Finality: Transactions on Fantom achieve immediate finality, meaning they are confirmed and cannot be reversed. This property is ideal for applications requiring fast and irreversible transactions.

S.5 Incentive Mechanisms and Applicable Fees

Spell Token is present on the following networks: Arbitrum, Avalanche, Ethereum, Fantom.

Transactions on Arbitrum are subject to fees paid in ETH. The total fee generally consists of a Layer 2 execution component, which covers the computational resources required to process the transaction, and a parent-chain data component, which reflects the cost of publishing compressed transaction data to Ethereum. The amount payable therefore depends on the computational

complexity of the transaction, the volume and compressibility of its data and the prevailing cost of data publication on Ethereum. Participants that submit or challenge state assertions under the dispute protocol must provide economic bonds. These bonds are intended to discourage incorrect assertions and compensate successful participants in the dispute process. Withdrawals through the canonical bridge become executable after the relevant Layer 2 state has been confirmed and the applicable challenge period has elapsed.

The Avalanche C-Chain is secured economically through the native AVAX token. Validator incentives are based primarily on staking rewards, not on redistribution of C-Chain transaction fees. A fixed amount of 360 million AVAX was minted at genesis, while additional AVAX is minted over time as validator rewards, subject to Avalanche's capped token supply framework. Validator rewards are paid at the end of the staking period and are determined by factors such as the validator's stake and compliance with staking conditions. Unlike some proof-of-stake systems, the Avalanche Primary Network does not use slashing of bonded principal as an ordinary penalty mechanism. Instead, the main protocol-level economic consequence for underperformance is the loss of reward eligibility. Where a validator fails to satisfy the applicable uptime requirement during its staking term, that validator does not receive the corresponding staking reward. Transaction fees apply on the C-Chain for transfers and smart-contract execution. The fee model follows EIP-1559 logic, meaning that transactions are priced through a dynamic base fee mechanism. In contrast to Ethereum's validator tip model, C-Chain transaction fees are burned rather than distributed to validators. This means that C-Chain fees function as a supply-reduction mechanism and are intended in part to offset inflation arising from the minting of validator rewards. In addition to ordinary transaction and smart-contract execution fees, Avalanche documentation also recognises protocol fees in connection with other network operations on other chains of the Primary Network, such as certain import or export operations and staking-related actions. However, for the C-Chain itself, the core applicable fee category is the gas fee for transaction inclusion and contract execution, and those fees are handled through the protocol burn mechanism rather than paid to validators or a treasury.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

Fantom's incentive model promotes network security through staking rewards, transaction fees, and delegation options, encouraging broad participation.

Incentive Mechanisms:

1. Staking Rewards for Validators:

- Earning Rewards in FTM: Validators who participate in the consensus process earn rewards in FTM tokens, proportional to the amount they have staked. This incentivizes validators to actively secure the network.

- Dynamic Staking Rate: Fantom's staking reward rate is dynamic, adjusting based on total FTM staked across the network. As more FTM is staked, individual rewards may decrease, maintaining a balanced reward structure that supports long-term network security.

2. Delegation for Token Holders:

Delegated Staking: Users who do not operate validator nodes can delegate their FTM tokens to validators. In return, they share in the staking rewards, encouraging wider participation in securing the network.

Applicable Fees:

- Transaction Fees in FTM: Users pay transaction fees in FTM tokens. The network's high throughput and DAG structure keep fees low, making Fantom ideal for decentralized applications (dApps) requiring frequent transactions.
- Efficient Fee Model: The low fees and scalability of the network make it cost-effective for users, fostering a favorable environment for high-volume applications.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) arbitrum, avalanche, ethereum, fantom is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Dolomite
DOLO | G6QFN3Z7F

Quantitative information

Quantitative sustainability indicators for Dolomite

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Dolomite	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	96.85541	kWh/a

Qualitative information

S.4 Consensus Mechanism

Dolomite is present on the following networks: Arbitrum, Berachain, Ethereum.

Arbitrum is an optimistic rollup that processes transactions on a Layer 2 network and relies on Ethereum for data availability and settlement. A sequencer orders incoming transactions, executes them and publishes compressed transaction batches to Ethereum. Arbitrum nodes can independently reconstruct and verify the resulting Layer 2 state using the transaction data published on the parent chain. Validators submit assertions representing the state of the network. Under the BoLD dispute protocol, conflicting or incorrect assertions may be challenged and resolved through an interactive fraud-proof process on Ethereum. Once an assertion has been confirmed and the applicable challenge process has been completed, the corresponding Layer 2 state is accepted for settlement purposes.

Berachain utilizes a unique consensus mechanism called Proof-of-Liquidity (PoL). In this system, validators secure the network by staking the native gas token, \$BERA. The likelihood of a validator being selected to propose a block is proportional to the amount of \$BERA they have staked. Upon successfully proposing a block, validators receive rewards in the form of \$BGT (Bera Governance Token). The amount of \$BGT awarded is influenced by the level of \$BGT delegation they have received from other participants. This mechanism aligns the incentives of validators, protocols, and users, contributing to the overall long-term health of the chain.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Dolomite is present on the following networks: Arbitrum, Berachain, Ethereum.

Transactions on Arbitrum are subject to fees paid in ETH. The total fee generally consists of a Layer 2 execution component, which covers the computational resources required to process the transaction, and a parent-chain data component, which reflects the cost of publishing compressed transaction data to Ethereum. The amount payable therefore depends on the computational complexity of the transaction, the volume and compressibility of its data and the prevailing cost of data publication on Ethereum. Participants that submit or challenge state assertions under the dispute protocol must provide economic bonds. These bonds are intended to discourage incorrect assertions and compensate successful participants in the dispute process. Withdrawals through the canonical bridge become executable after the relevant Layer 2 state has been confirmed and the applicable challenge period has elapsed.

In Berachain's economic model, validators and delegators are incentivized through a combination of staking rewards and protocol-provided incentives. Validators earn \$BGT rewards for block production, with the reward size determined by their boost, which is a percentage calculated from the validator's \$BGT boost out of the total \$BGT boosted to all validators. Validators can direct their \$BGT emissions to whitelisted Reward Vaults of their choosing, and in exchange, they receive protocol-provided incentives from these Reward Vaults. Delegators, by staking their \$BGT with validators, can influence the validator's boost and share in the rewards. Transaction fees on the network are paid in \$BERA and are burned, removing them from the circulating supply. This structure ensures that all participants are motivated to contribute to the network's security and efficiency.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur

inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) arbitrum, berachain, ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.


SUN

SUN | DRSV113K4

Quantitative information

Quantitative sustainability indicators for SUN

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	SUN	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	96.78151	kWh/a

Qualitative information

S.4 Consensus Mechanism

The Tron blockchain operates on a Delegated Proof of Stake (DPoS) consensus mechanism, designed to improve scalability, transaction speed, and energy efficiency.

Core Components:

1. Delegated Proof of Stake (DPoS): Tron uses DPoS, where token holders vote for a group of delegates known as Super Representatives (SRs) who are responsible for validating transactions and producing new blocks on the network. Token holders can vote for SRs based on their stake in the Tron network, and the top 27 SRs (or more, depending on the protocol version) are selected to participate in the block production process. SRs take turns producing blocks, which are added to the blockchain. This is done on a rotational basis to ensure decentralization and prevent control by a small group of validators.
2. Block Production: The Super Representatives generate new blocks and confirm transactions. The Tron blockchain achieves block finality quickly, with block production occurring every 3 seconds, making it highly efficient and capable of processing thousands of transactions per second.
3. Voting and Governance: Tron's DPoS system also allows token holders to vote on important network decisions, such as protocol upgrades and changes to the system's parameters. Voting power is proportional to the amount of TRX (Tron's native token) that a user holds and chooses to stake. This provides a governance system where the community can actively participate in decision-making.

4. Super Representatives: The Super Representatives play a crucial role in maintaining the security and stability of the Tron blockchain. They are responsible for validating transactions, proposing new blocks, and ensuring the overall functionality of the network. Super Representatives are incentivized with block rewards (newly minted TRX tokens) and transaction fees for their work.

S.5 Incentive Mechanisms and Applicable Fees

The Tron blockchain uses a Delegated Proof of Stake (DPoS) consensus mechanism to secure its network and incentivize participation.

Incentive Mechanism:

1. Super Representatives (SRs) Rewards:
 - Block Rewards: Super Representatives (SRs), who are elected by TRX holders, are rewarded for producing blocks. Each block they produce comes with a block reward in the form of TRX tokens.
 - Transaction Fees: In addition to block rewards, SRs receive transaction fees for validating transactions and including them in blocks. This ensures they are incentivized to process transactions efficiently.
2. Voting and Delegation:
 - TRX Staking: TRX holders can stake their tokens and vote for Super Representatives (SRs). When TRX holders vote, they delegate their voting power to SRs, which allows SRs to earn rewards in the form of newly minted TRX tokens.
 - Delegator Rewards: Token holders who delegate their votes to an SR can also receive a share of the rewards. This means delegators share in the block rewards and transaction fees that the SR earns.
 - Incentivizing Participation: The more tokens a user stakes, the more voting power they have, which encourages participation in governance and network security.
3. Incentive for SRs:

SRs are also incentivized to maintain the health and performance of the network. Their reputation and continued election depend on their ability to produce blocks consistently and efficiently process transactions.

Applicable Fees:

1. Transaction Fees:
 - Fee Calculation: Users must pay transaction fees to have their transactions processed. The transaction fee varies based on the complexity of the transaction and the network's current demand. This is paid in TRX tokens.
 - Fee Distribution: Transaction fees are distributed to Super Representatives (SRs), giving them an ongoing income to maintain and support the network.
2. Storage Fees:

Tron charges storage fees for data storage on the blockchain. This includes storing smart contracts, tokens, and other data on the network. Users are required to pay these fees in TRX tokens to store data.
3. Energy and Bandwidth:

Energy: Tron uses a resource model that allows users to access network resources like bandwidth and energy through staking. Users who stake their TRX tokens receive energy

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) tron is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for TokenFi

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	TokenFi	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	95.37984	kWh/a

Qualitative information

S.4 Consensus Mechanism

TokenFi is present on the following networks: Binance Smart Chain, Ethereum.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon

Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

TokenFi is present on the following networks: Binance Smart Chain, Ethereum.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to

slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) binance_smart_chain, ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Audius

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Audius	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	95.00385	kWh/a

Qualitative information

S.4 Consensus Mechanism

Audius is present on the following networks: Ethereum, Gnosis Chain, Solana.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

Gnosis Chain – Consensus Mechanism Gnosis Chain employs a dual-layer structure to balance scalability and security, using Proof of Stake (PoS) for its core consensus and transaction finality.

Core Components:

- Two-Layer Structure Layer 1: Gnosis Beacon Chain The Gnosis Beacon Chain operates on a Proof of Stake (PoS) mechanism, acting as the security and consensus backbone. Validators stake GNO tokens on the Beacon Chain and validate transactions, ensuring network security and finality.
- Layer 2: Gnosis xDai Chain processes transactions and dApp interactions, providing high-speed, low-cost transactions. Layer 2 transaction data is finalized on the Gnosis Beacon Chain, creating an integrated framework where Layer 1 ensures security and finality, and Layer 2 enhances scalability. Validator Role and Staking Validators on the Gnosis Beacon Chain stake GNO tokens and participate in consensus by validating blocks. This setup ensures that validators have an economic interest in maintaining the security and integrity of both the Beacon Chain (Layer 1) and the xDai Chain (Layer 2). Cross-Layer Security Transactions on Layer 2 are ultimately finalized on Layer 1, providing security and finality to all activities on the Gnosis Chain. This architecture allows Gnosis Chain to combine the speed and cost efficiency of Layer 2 with the security guarantees of a PoS-secured Layer 1, making it suitable for both high-frequency applications and secure asset management.

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Audius is present on the following networks: Ethereum, Gnosis Chain, Solana.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

The Gnosis Chain's incentive and fee models encourage both validator participation and network accessibility, using a dual-token system to maintain low transaction costs and effective staking rewards.

Incentive Mechanisms:

- Staking Rewards for Validators GNO Rewards: Validators earn staking rewards in GNO tokens for their participation in consensus and securing the network.

- Delegation Model: GNO holders who do not operate validator nodes can delegate their GNO tokens to validators, allowing them to share in staking rewards and encouraging broader participation in network security.
- Dual-Token Model GNO: Used for staking, governance, and validator rewards, GNO aligns long-term network security incentives with token holders' economic interests.
- xDai: Serves as the primary transaction currency, providing stable and low-cost transactions. The use of a stable token (xDai) for fees minimizes volatility and offers predictable costs for users and developers.

Applicable Fees:

Transaction Fees in xDai Users pay transaction fees in xDai, the stable fee token, making costs affordable and predictable. This model is especially suited for high-frequency applications and dApps where low transaction fees are essential. xDai transaction fees are redistributed to validators as part of their compensation, aligning their rewards with network activity. Delegated Staking Rewards Through delegated staking, GNO holders can earn a share of staking rewards by delegating their tokens to active validators, promoting user participation in network security without requiring direct involvement in consensus operations.

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.
- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.

2. Delegators:

- Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.

3. Economic Security:

- Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
- Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Fees Applicable on the Solana Blockchain

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.

2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.

3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.

4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum, gnosis_chain, solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Alchemix

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Alchemix	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	94.01923	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Cartesi Token

CTSI | BL44WHVKM

Quantitative information

Quantitative sustainability indicators for Cartesi Token

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Cartesi Token	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	93.23929	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Mirror Protocol

MIR | /

Quantitative information

Quantitative sustainability indicators for Mirror Protocol

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Mirror Protocol	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	93.02955	kWh/a

Qualitative information

S.4 Consensus Mechanism

Mirror Protocol is present on the following networks: Binance Smart Chain, Ethereum.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon

Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Mirror Protocol is present on the following networks: Binance Smart Chain, Ethereum.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to

slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) binance_smart_chain, ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for PORTAL

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	PORTAL	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	91.89210	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Kyber Network Crystal v2

KNC | LODZSBLVZ

Quantitative information

Quantitative sustainability indicators for Kyber Network Crystal v2

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Kyber Network Crystal v2	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	90.48285	kWh/a

Qualitative information

S.4 Consensus Mechanism

Kyber Network Crystal v2 is present on the following networks: Arbitrum, Binance Smart Chain, Ethereum, Optimism, Polygon.

Arbitrum is an optimistic rollup that processes transactions on a Layer 2 network and relies on Ethereum for data availability and settlement. A sequencer orders incoming transactions, executes them and publishes compressed transaction batches to Ethereum. Arbitrum nodes can independently reconstruct and verify the resulting Layer 2 state using the transaction data published on the parent chain. Validators submit assertions representing the state of the network. Under the BoLD dispute protocol, conflicting or incorrect assertions may be challenged and resolved through an interactive fraud-proof process on Ethereum. Once an assertion has been confirmed and the applicable challenge process has been completed, the corresponding Layer 2 state is accepted for settlement purposes.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 "Cabinet" validators and 24 "Candidate" validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by

validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

Since Optimism is based on Ethereum, it ultimately inherits its security via the Ethereum blockchain and the proof-of-stake consensus. Within the rollup system, Optimism relies on a "fault proof" procedure. By default, transactions are assumed to be correct ("optimistic"). Only in the event of suspected faults is a fault proof initiated, in which incorrect transactions can be challenged by challengers. This model allows for high efficiency while ensuring correctness.

Polygon PoS is an EVM-compatible sidechain that operates with a Proof-of-Stake consensus mechanism and periodically submits checkpoints to the Ethereum mainnet. The network maintains its own validator set and processes transactions independently from Ethereum, while using Ethereum smart contracts for staking-related functions and checkpoint verification. Polygon PoS therefore uses Ethereum as a staking and checkpointing layer, but does not rely on Ethereum for full transaction execution or transaction data availability. The Polygon-side architecture consists of two primary node layers. The Bor layer is responsible for transaction execution and block production. The Heimdall layer is responsible for validator coordination, staking-related monitoring, consensus, and checkpoint finalisation. Heimdall is based on Cosmos SDK and CometBFT and aggregates blocks produced by Bor into periodic Merkle-root checkpoints that are submitted to smart contracts on the Ethereum mainnet. Validators participate in the network by staking POL tokens. Token holders may delegate POL tokens to validators, contributing to the validator's effective stake and participating indirectly in network validation. Following the Rio upgrade, Polygon PoS uses a Validator-Elected Block Producer model. Under this model, validators elect the block producer or block producers for a span, rather than relying on the previous stake-weighted selection model for multiple block producers over shorter intervals. Block production and transaction execution are performed on the Bor layer, while Heimdall validators coordinate consensus and checkpoint finalisation. At regular intervals, Heimdall validators aggregate blocks into a Merkle root and submit the resulting checkpoint to Ethereum smart contracts. These checkpoints provide an additional verification layer and support cross-chain verification, including in the context of asset transfers between Polygon PoS and Ethereum. This design enables higher transaction throughput and lower transaction costs than the Ethereum mainnet, while maintaining a technical connection to Ethereum through staking contracts and periodic checkpointing. Polygon PoS should therefore be understood as an independent sidechain or commit-chain architecture, rather than a rollup that inherits full execution and data availability security from Ethereum.

S.5 Incentive Mechanisms and Applicable Fees

Kyber Network Crystal v2 is present on the following networks: Arbitrum, Binance Smart Chain, Ethereum, Optimism, Polygon.

Transactions on Arbitrum are subject to fees paid in ETH. The total fee generally consists of a Layer 2 execution component, which covers the computational resources required to process the transaction, and a parent-chain data component, which reflects the cost of publishing compressed transaction data to Ethereum. The amount payable therefore depends on the computational complexity of the transaction, the volume and compressibility of its data and the prevailing cost of data publication on Ethereum. Participants that submit or challenge state assertions under the dispute protocol must provide economic bonds. These bonds are intended to discourage incorrect assertions and compensate successful participants in the dispute process. Withdrawals through the canonical bridge become executable after the relevant Layer 2 state has been confirmed and the applicable challenge period has elapsed.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and

an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

Optimism charges lower transaction fees than Ethereum Layer 1, as transactions are bundled in the rollup and written to the Ethereum main chain in compressed form. Gas fees on Optimism continue to be paid in ETH. The incentive model is based on increased efficiency for users (lower fees, faster confirmation) and on the role of sequencers. Sequencers are central actors who collect, organize, and include transactions in the rollup. Their revenue comes from the gas fees they charge.

Polygon PoS uses economic incentives to support validator participation, transaction processing, and network operation. Validators stake POL tokens and participate in block production, validation, voting, and checkpoint finalisation. Validators may receive rewards connected to their participation in the network, including rewards linked to validation activities and transaction-fee allocation, depending on the applicable protocol rules. Token holders who do not operate validator infrastructure may delegate POL tokens to validators. Delegators may receive a share of rewards attributable to the validator to whom they delegate, subject to the validator's commission and applicable protocol rules. Delegation increases the validator's effective stake and may affect its role in the validator set and related network processes. Following the Rio upgrade, Polygon PoS introduced a Validator-Elected Block Producer model, under which validators elect the block producer or block producers for a span. Publicly described protocol changes associated with this model also provide for redistribution of fees, including maximum extractable value-related fees where applicable, to non-producing validators under the relevant protocol design. This changes the incentive structure from the previous model in which block production selection was more directly described by reference to stake-weighted producer selection. Polygon PoS includes protocol specifications for validator penalties, including slashing-related concepts. Transactions on Polygon PoS require payment of network fees in POL. Fees apply to ordinary token transfers, smart contract deployment, and smart contract interaction. The amount of fees may vary depending on network demand, transaction complexity, and computational resources required. Because Polygon PoS processes transactions independently from Ethereum, transaction fees are generally designed to be lower than equivalent activity on the Ethereum mainnet, although actual fees may change according to network conditions and protocol parameters.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) arbitrum, binance_smart_chain, ethereum, optimism, polygon is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Wen

WEN | CT2TZWNCQ

Quantitative information

Quantitative sustainability indicators for Wen

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Wen	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	88.50336	kWh/a

Qualitative information

S.4 Consensus Mechanism

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.

- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.
- 2. Delegators:
 - Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.
- 3. Economic Security:
 - Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
 - Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.
2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.
3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.
4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Chintai

CHEX | /

Quantitative information

Quantitative sustainability indicators for Chintai

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Chintai	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	86.71045	kWh/a

Qualitative information

S.4 Consensus Mechanism

Chintai is present on the following networks: Binance Smart Chain, Ethereum, Solana.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon

Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Chintai is present on the following networks: Binance Smart Chain, Ethereum, Solana.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.
- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.

2. Delegators:

- Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.

3. Economic Security:

- Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
- Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties. Fees Applicable on the Solana Blockchain

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.

2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.

3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.

4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) binance_smart_chain, ethereum, solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Dual

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Dual	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	86.15320	kWh/a

Qualitative information

S.4 Consensus Mechanism

Dual is present on the following networks: Base, Ethereum.

Base does not operate its own consensus mechanism or decentralised validator set comparable to a Layer-1 blockchain. As an optimistic rollup Layer-2 network, Base relies on Ethereum's Proof-of-Stake consensus for the finality and settlement of data and state commitments posted to Ethereum Layer 1. Transaction ordering on Base is performed by a sequencer, currently operated by Coinbase. This sequencing function provides transaction ordering and execution on the Layer-2 network but does not constitute a decentralised consensus mechanism. The validity of Layer-2 state transitions is supported by an optimistic fault-proof mechanism, under which incorrect state commitments may be challenged during the applicable dispute period. Accordingly, Base's security model depends on Ethereum Layer 1 for settlement and finality, while Layer-2 transaction ordering remains dependent on the sequencer.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the

canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Dual is present on the following networks: Base, Ethereum.

Base does not have a native protocol token and does not operate a staking, validator reward or token issuance mechanism. Transaction fees on Base are paid in ETH. The economic incentives within the network are primarily related to transaction processing and network security. Transactions are executed on Base and periodically submitted to Ethereum Layer 1 in batches. As the cost of a Layer-1 submission is shared among multiple Layer-2 transactions, the average transaction cost per transaction may be lower than executing the same transactions directly on Ethereum Layer 1. The integrity of withdrawals from Base is supported by a fault-proof mechanism. Withdrawals are subject to a dispute period during which participants may challenge incorrect state commitments. The dispute process incorporates economic incentives intended to encourage honest behaviour and discourage invalid claims.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) base, ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Enso

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Enso	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	85.13781	kWh/a

Qualitative information

S.4 Consensus Mechanism

Enso is present on the following networks: Binance Smart Chain, Ethereum.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon

Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Enso is present on the following networks: Binance Smart Chain, Ethereum.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to

slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) binance_smart_chain, ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Bonzo Finance

BONZO | /

Quantitative information

Quantitative sustainability indicators for Bonzo Finance

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Bonzo Finance	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	82.12500	kWh/a

Qualitative information

S.4 Consensus Mechanism

Hedera Hashgraph operates on a unique Hashgraph consensus algorithm, a directed acyclic graph (DAG) system that diverges from traditional blockchain technology. It uses Asynchronous Byzantine Fault Tolerance (aBFT) to secure the network.

Core Components:

1. Hashgraph Consensus and aBFT:

Hedera Hashgraph's consensus mechanism achieves aBFT, which allows the network to tolerate malicious nodes without compromising security, ensuring high levels of fault tolerance and stability.

2. Gossip about Gossip Protocol:

The network employs a "Gossip about Gossip" protocol, where nodes share transaction information along with details of previous gossip events. This process allows each node to rapidly learn the entire network state, enhancing communication efficiency and minimizing latency.

3. Virtual Voting:

Hedera does not rely on traditional miners or stakers. Instead, it uses virtual voting, where nodes reach consensus by analyzing the gossip history and simulating votes based on the order and frequency of transactions received. Virtual voting eliminates the need for actual voting messages, reducing network congestion and speeding up consensus.

4. Deterministic Finality:

Once consensus is reached, transactions achieve deterministic finality instantly, making them irreversible and confirmed within seconds. This attribute is ideal for applications needing quick and irreversible transaction confirmations.

5. Staking for Network Security:

Hedera incorporates staking to bolster network security. HBAR holders can stake their tokens to support validator nodes, contributing to the network's resilience and encouraging long-term engagement in consensus operations.

5.5 Incentive Mechanisms and Applicable Fees

Hedera Hashgraph incentivizes network participation through transaction fees and staking rewards, with a structured and predictable fee model designed for enterprise use.

Incentive Mechanisms:

1. Staking Rewards for Nodes:

- HBAR Rewards for Node Operators: Node operators earn HBAR rewards for providing network security and processing transactions, incentivizing them to act honestly and support network stability.
- User Staking: HBAR holders can stake their tokens to support nodes. Staking rewards offer an additional incentive for token holders to engage in network operations, although the structure may evolve with network growth.

2. Service-Based Node Rewards:

Nodes receive rewards based on specific services they provide to the network, such as:

- Consensus Services: Reaching consensus and maintaining transaction order.
- File Storage: Storing data on the Hedera network.
- Smart Contract Processing: Supporting contract executions for decentralized applications.

Applicable Fees:

1. Predictable Transaction Fees: Hedera's fee structure is fixed and predictable, ensuring transparent costs for users and appealing to enterprise-grade applications. Transaction fees are paid in HBAR and are designed to be stable, making it easier for businesses to plan for usage costs.
2. Fee Allocation: All transaction fees collected in HBAR are distributed to network nodes as rewards, reinforcing their role in maintaining network integrity and processing transactions efficiently.

5.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) hedera_hbar is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



dogwifhat

WIF | 10G31SK86

Quantitative information

Quantitative sustainability indicators for dogwifhat

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	dogwifhat	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	81.68163	kWh/a

Qualitative information

S.4 Consensus Mechanism

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.

- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.
- 2. Delegators:
 - Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.
- 3. Economic Security:
 - Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
 - Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.
2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.
3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.
4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Wayfinder Prompt

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Wayfinder Prompt	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	79.72425	kWh/a

Qualitative information

S.4 Consensus Mechanism

Wayfinder Prompt is present on the following networks: Base, Binance Smart Chain, Ethereum.

Base does not operate its own consensus mechanism or decentralised validator set comparable to a Layer-1 blockchain. As an optimistic rollup Layer-2 network, Base relies on Ethereum's Proof-of-Stake consensus for the finality and settlement of data and state commitments posted to Ethereum Layer 1. Transaction ordering on Base is performed by a sequencer, currently operated by Coinbase. This sequencing function provides transaction ordering and execution on the Layer-2 network but does not constitute a decentralised consensus mechanism. The validity of Layer-2 state transitions is supported by an optimistic fault-proof mechanism, under which incorrect state commitments may be challenged during the applicable dispute period. Accordingly, Base's security model depends on Ethereum Layer 1 for settlement and finality, while Layer-2 transaction ordering remains dependent on the sequencer.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 "Cabinet" validators and 24 "Candidate" validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by

validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Wayfinder Prompt is present on the following networks: Base, Binance Smart Chain, Ethereum.

Base does not have a native protocol token and does not operate a staking, validator reward or token issuance mechanism. Transaction fees on Base are paid in ETH. The economic incentives within the network are primarily related to transaction processing and network security. Transactions are executed on Base and periodically submitted to Ethereum Layer 1 in batches. As the cost of a Layer-1 submission is shared among multiple Layer-2 transactions, the average transaction cost per transaction may be lower than executing the same transactions directly on Ethereum Layer 1. The integrity of withdrawals from Base is supported by a fault-proof mechanism. Withdrawals are subject to a dispute period during which participants may challenge incorrect state commitments. The dispute process incorporates economic incentives intended to encourage honest behaviour and discourage invalid claims.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The

staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) base, binance_smart_chain, ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for GAIB

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	GAIB	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	78.38268	kWh/a

Qualitative information

S.4 Consensus Mechanism

GAIB is present on the following networks: Binance Smart Chain, Ethereum.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon

Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

GAIB is present on the following networks: Binance Smart Chain, Ethereum.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to

slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) binance_smart_chain, ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Enjin

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Enjin	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	78.34936	kWh/a

Qualitative information

S.4 Consensus Mechanism

Enjin is present on the following networks: Ethereum, Solana.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Enjin is present on the following networks: Ethereum, Solana.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.
- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.

2. Delegators:

- Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.

3. Economic Security:

- Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
- Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties. Fees Applicable on the Solana Blockchain

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.

2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.

3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.

4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum, solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



ResearchCoin

RSC | FDQM0JPZP

Quantitative information

Quantitative sustainability indicators for ResearchCoin

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	ResearchCoin	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	77.06101	kWh/a

Qualitative information

S.4 Consensus Mechanism

ResearchCoin is present on the following networks: Base, Ethereum.

Base does not operate its own consensus mechanism or decentralised validator set comparable to a Layer-1 blockchain. As an optimistic rollup Layer-2 network, Base relies on Ethereum's Proof-of-Stake consensus for the finality and settlement of data and state commitments posted to Ethereum Layer 1. Transaction ordering on Base is performed by a sequencer, currently operated by Coinbase. This sequencing function provides transaction ordering and execution on the Layer-2 network but does not constitute a decentralised consensus mechanism. The validity of Layer-2 state transitions is supported by an optimistic fault-proof mechanism, under which incorrect state commitments may be challenged during the applicable dispute period. Accordingly, Base's security model depends on Ethereum Layer 1 for settlement and finality, while Layer-2 transaction ordering remains dependent on the sequencer.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the

canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

ResearchCoin is present on the following networks: Base, Ethereum.

Base does not have a native protocol token and does not operate a staking, validator reward or token issuance mechanism. Transaction fees on Base are paid in ETH. The economic incentives within the network are primarily related to transaction processing and network security. Transactions are executed on Base and periodically submitted to Ethereum Layer 1 in batches. As the cost of a Layer-1 submission is shared among multiple Layer-2 transactions, the average transaction cost per transaction may be lower than executing the same transactions directly on Ethereum Layer 1. The integrity of withdrawals from Base is supported by a fault-proof mechanism. Withdrawals are subject to a dispute period during which participants may challenge incorrect state commitments. The dispute process incorporates economic incentives intended to encourage honest behaviour and discourage invalid claims.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) base, ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Hyperlane

HYPER | 8VJ8TXW4B

Quantitative information

Quantitative sustainability indicators for Hyperlane

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Hyperlane	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	74.66505	kWh/a

Qualitative information

S.4 Consensus Mechanism

Hyperlane is present on the following networks: Arbitrum, Base, Binance Smart Chain, Ethereum, Optimism.

Arbitrum is an optimistic rollup that processes transactions on a Layer 2 network and relies on Ethereum for data availability and settlement. A sequencer orders incoming transactions, executes them and publishes compressed transaction batches to Ethereum. Arbitrum nodes can independently reconstruct and verify the resulting Layer 2 state using the transaction data published on the parent chain. Validators submit assertions representing the state of the network. Under the BoLD dispute protocol, conflicting or incorrect assertions may be challenged and resolved through an interactive fraud-proof process on Ethereum. Once an assertion has been confirmed and the applicable challenge process has been completed, the corresponding Layer 2 state is accepted for settlement purposes.

Base does not operate its own consensus mechanism or decentralised validator set comparable to a Layer-1 blockchain. As an optimistic rollup Layer-2 network, Base relies on Ethereum's Proof-of-Stake consensus for the finality and settlement of data and state commitments posted to Ethereum Layer 1. Transaction ordering on Base is performed by a sequencer, currently operated by Coinbase. This sequencing function provides transaction ordering and execution on the Layer-2 network but does not constitute a decentralised consensus mechanism. The validity of Layer-2 state transitions is supported by an optimistic fault-proof mechanism, under which incorrect state commitments may be challenged during the applicable dispute period. Accordingly, Base's security model depends on

Ethereum Layer 1 for settlement and finality, while Layer-2 transaction ordering remains dependent on the sequencer.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum’s consensus mechanism and Layer 2 functionality.

Since Optimism is based on Ethereum, it ultimately inherits its security via the Ethereum blockchain and the proof-of-stake consensus. Within the rollup system, Optimism relies on a “fault proof” procedure. By default, transactions are assumed to be correct (“optimistic”). Only in the event of suspected faults is a fault proof initiated, in which incorrect transactions can be challenged by challengers. This model allows for high efficiency while ensuring correctness.

S.5 Incentive Mechanisms and Applicable Fees

Hyperlane is present on the following networks: Arbitrum, Base, Binance Smart Chain, Ethereum, Optimism.

Transactions on Arbitrum are subject to fees paid in ETH. The total fee generally consists of a Layer 2 execution component, which covers the computational resources required to process the transaction, and a parent-chain data component, which reflects the cost of publishing compressed transaction data to Ethereum. The amount payable therefore depends on the computational complexity of the transaction, the volume and compressibility of its data and the prevailing cost of data publication on Ethereum. Participants that submit or challenge state assertions under the dispute protocol must provide economic bonds. These bonds are intended to discourage incorrect assertions and compensate successful participants in the dispute process. Withdrawals through the

canonical bridge become executable after the relevant Layer 2 state has been confirmed and the applicable challenge period has elapsed.

Base does not have a native protocol token and does not operate a staking, validator reward or token issuance mechanism. Transaction fees on Base are paid in ETH. The economic incentives within the network are primarily related to transaction processing and network security. Transactions are executed on Base and periodically submitted to Ethereum Layer 1 in batches. As the cost of a Layer-1 submission is shared among multiple Layer-2 transactions, the average transaction cost per transaction may be lower than executing the same transactions directly on Ethereum Layer 1. The integrity of withdrawals from Base is supported by a fault-proof mechanism. Withdrawals are subject to a dispute period during which participants may challenge incorrect state commitments. The dispute process incorporates economic incentives intended to encourage honest behaviour and discourage invalid claims.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to

slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

Optimism charges lower transaction fees than Ethereum Layer 1, as transactions are bundled in the rollup and written to the Ethereum main chain in compressed form. Gas fees on Optimism continue to be paid in ETH. The incentive model is based on increased efficiency for users (lower fees, faster confirmation) and on the role of sequencers. Sequencers are central actors who collect, organize, and include transactions in the rollup. Their revenue comes from the gas fees they charge.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) arbitrum, base, binance_smart_chain, ethereum, optimism is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Marlin POND

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Marlin POND	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	74.66257	kWh/a

Qualitative information

S.4 Consensus Mechanism

Marlin POND is present on the following networks: Arbitrum, Ethereum.

Arbitrum is an optimistic rollup that processes transactions on a Layer 2 network and relies on Ethereum for data availability and settlement. A sequencer orders incoming transactions, executes them and publishes compressed transaction batches to Ethereum. Arbitrum nodes can independently reconstruct and verify the resulting Layer 2 state using the transaction data published on the parent chain. Validators submit assertions representing the state of the network. Under the BoLD dispute protocol, conflicting or incorrect assertions may be challenged and resolved through an interactive fraud-proof process on Ethereum. Once an assertion has been confirmed and the applicable challenge process has been completed, the corresponding Layer 2 state is accepted for settlement purposes.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in

certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Marlin POND is present on the following networks: Arbitrum, Ethereum.

Transactions on Arbitrum are subject to fees paid in ETH. The total fee generally consists of a Layer 2 execution component, which covers the computational resources required to process the transaction, and a parent-chain data component, which reflects the cost of publishing compressed transaction data to Ethereum. The amount payable therefore depends on the computational complexity of the transaction, the volume and compressibility of its data and the prevailing cost of data publication on Ethereum. Participants that submit or challenge state assertions under the dispute protocol must provide economic bonds. These bonds are intended to discourage incorrect assertions and compensate successful participants in the dispute process. Withdrawals through the canonical bridge become executable after the relevant Layer 2 state has been confirmed and the applicable challenge period has elapsed.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) arbitrum, ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Gluwa Creditcoin Vesting Token

GCRE | CJC8G9C3

Quantitative information

Quantitative sustainability indicators for Gluwa Creditcoin Vesting Token

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Gluwa Creditcoin Vesting Token	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	74.09510	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for iEx ec Network Token

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	iEx ec Network Token	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	72.60610	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Helium

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Helium	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	72.51903	kWh/a

Qualitative information

S.4 Consensus Mechanism

Helium is present on the following networks: Helium, Solana.

Helium operates on a unique consensus model called Proof of Coverage (PoC), optimized for decentralized, location-based verification and low-power wireless IoT networks.

Core Components of Helium's Consensus:

1. Proof of Coverage (PoC):

- Hotspot Verification: PoC is a consensus protocol designed specifically for Helium, ensuring that network nodes, known as hotspots, provide valid wireless coverage in their claimed location.
- Challenge System: Hotspots are randomly selected to participate in PoC challenges involving three roles:
 - Challenger: Initiates the verification process.
 - Transmitter: Broadcasts signals to other hotspots.
 - Witness: Confirms signal receipt, verifying that coverage is active in a specific location.
- Off-Chain Processing on Solana: Helium's PoC is processed off-chain on Solana, with results stored on Solana's blockchain to reduce on-chain resource usage while maintaining decentralized verification. Solana itself is secured through a Proof-of-Stake (PoS) mechanism.

2. LongFi Protocol: Helium utilizes LongFi, a protocol that integrates LoRaWAN technology with blockchain. This protocol supports low-power, long-range communication ideal for IoT devices, optimizing for low bandwidth and extensive range applications.

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.

- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.
- 3. Economic Penalties:
 - Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Helium is present on the following networks: Helium, Solana.

Helium's incentive structure rewards hotspot operators for verifying coverage and transmitting IoT data, aligning rewards with network participation and actual service provision.

Incentive Mechanisms:

1. Hotspot Operator Rewards:
 - Hotspot operators earn Helium's native HNT tokens as rewards for participating in PoC challenges and transmitting IoT data. The amount of HNT earned depends on the PoC verification results and the volume of data transmitted through their hotspots.
2. Solana Validators:
 - Validators on Solana's network process Helium transactions and receive staking rewards in Solana's native token, SOL, contributing to Helium's transaction verification.

Applicable Fees:

- Usage Fees with DC: IoT device operators pay for network usage with Data Credits, which are generated by burning HNT tokens. This model decouples usage costs from HNT's market price, keeping transaction costs stable.
- HNT Burn Mechanism: The burning of HNT to generate Data Credits ties network utility to HNT token demand, creating a feedback loop that supports token stability and incentivizes participation in network services.

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:
 - Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.
 - Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.
2. Delegators:
 - Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.

3. Economic Security:

- Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
- Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties. Fees Applicable on the Solana Blockchain

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.

2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.

3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.

4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

To determine the energy consumption of a token, the energy consumption of the network(s) solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the

network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for RAILS

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	RAILS	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	72.32249	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Propy

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Propy	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	71.29809	kWh/a

Qualitative information

S.4 Consensus Mechanism

Propy is present on the following networks: Base, Ethereum.

Base does not operate its own consensus mechanism or decentralised validator set comparable to a Layer-1 blockchain. As an optimistic rollup Layer-2 network, Base relies on Ethereum's Proof-of-Stake consensus for the finality and settlement of data and state commitments posted to Ethereum Layer 1. Transaction ordering on Base is performed by a sequencer, currently operated by Coinbase. This sequencing function provides transaction ordering and execution on the Layer-2 network but does not constitute a decentralised consensus mechanism. The validity of Layer-2 state transitions is supported by an optimistic fault-proof mechanism, under which incorrect state commitments may be challenged during the applicable dispute period. Accordingly, Base's security model depends on Ethereum Layer 1 for settlement and finality, while Layer-2 transaction ordering remains dependent on the sequencer.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the

canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Propy is present on the following networks: Base, Ethereum.

Base does not have a native protocol token and does not operate a staking, validator reward or token issuance mechanism. Transaction fees on Base are paid in ETH. The economic incentives within the network are primarily related to transaction processing and network security. Transactions are executed on Base and periodically submitted to Ethereum Layer 1 in batches. As the cost of a Layer-1 submission is shared among multiple Layer-2 transactions, the average transaction cost per transaction may be lower than executing the same transactions directly on Ethereum Layer 1. The integrity of withdrawals from Base is supported by a fault-proof mechanism. Withdrawals are subject to a dispute period during which participants may challenge incorrect state commitments. The dispute process incorporates economic incentives intended to encourage honest behaviour and discourage invalid claims.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) base, ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Civic

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Civic	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	70.71633	kWh/a

Qualitative information

S.4 Consensus Mechanism

Civic is present on the following networks: Ethereum, Tron.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

The Tron blockchain operates on a Delegated Proof of Stake (DPoS) consensus mechanism, designed to improve scalability, transaction speed, and energy efficiency.

Core Components:

1. Delegated Proof of Stake (DPoS): Tron uses DPoS, where token holders vote for a group of delegates known as Super Representatives (SRs) who are responsible for validating transactions and producing new blocks on the network. Token holders can vote for SRs based on their stake in the Tron network, and the top 27 SRs (or more, depending on the protocol version) are selected to participate in the block production process. SRs take turns producing blocks, which are added to the blockchain. This is done on a rotational basis to ensure decentralization and prevent control by a small group of validators.
2. Block Production: The Super Representatives generate new blocks and confirm transactions. The Tron blockchain achieves block finality quickly, with block production occurring every 3 seconds, making it highly efficient and capable of processing thousands of transactions per second.
3. Voting and Governance: Tron's DPoS system also allows token holders to vote on important network decisions, such as protocol upgrades and changes to the system's parameters. Voting power is proportional to the amount of TRX (Tron's native token) that a user holds and chooses to stake. This provides a governance system where the community can actively participate in decision-making.
4. Super Representatives: The Super Representatives play a crucial role in maintaining the security and stability of the Tron blockchain. They are responsible for validating transactions, proposing new blocks, and ensuring the overall functionality of the network. Super Representatives are incentivized with block rewards (newly minted TRX tokens) and transaction fees for their work.

S.5 Incentive Mechanisms and Applicable Fees

Civic is present on the following networks: Ethereum, Tron.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

The Tron blockchain uses a Delegated Proof of Stake (DPoS) consensus mechanism to secure its network and incentivize participation.

Incentive Mechanism:

1. Super Representatives (SRs) Rewards:
 - Block Rewards: Super Representatives (SRs), who are elected by TRX holders, are rewarded for producing blocks. Each block they produce comes with a block reward in the form of TRX tokens.
 - Transaction Fees: In addition to block rewards, SRs receive transaction fees for validating transactions and including them in blocks. This ensures they are incentivized to process transactions efficiently.

2. Voting and Delegation:

- TRX Staking: TRX holders can stake their tokens and vote for Super Representatives (SRs). When TRX holders vote, they delegate their voting power to SRs, which allows SRs to earn rewards in the form of newly minted TRX tokens.
- Delegator Rewards: Token holders who delegate their votes to an SR can also receive a share of the rewards. This means delegators share in the block rewards and transaction fees that the SR earns.
- Incentivizing Participation: The more tokens a user stakes, the more voting power they have, which encourages participation in governance and network security.

3. Incentive for SRs:

SRs are also incentivized to maintain the health and performance of the network. Their reputation and continued election depend on their ability to produce blocks consistently and efficiently process transactions.

Applicable Fees:

1. Transaction Fees:

- Fee Calculation: Users must pay transaction fees to have their transactions processed. The transaction fee varies based on the complexity of the transaction and the network's current demand. This is paid in TRX tokens. Transaction
- Fee Distribution: Transaction fees are distributed to Super Representatives (SRs), giving them an ongoing income to maintain and support the network.

2. Storage Fees:

Tron charges storage fees for data storage on the blockchain. This includes storing smart contracts, tokens, and other data on the network. Users are required to pay these fees in TRX tokens to store data.

3. Energy and Bandwidth:

Energy: Tron uses a resource model that allows users to access network resources like bandwidth and energy through staking. Users who stake their TRX tokens receive \energy

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum, tron is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for INFINIT

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	INFINIT	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	68.63372	kWh/a

Qualitative information

S.4 Consensus Mechanism

INFINIT is present on the following networks: Binance Smart Chain, Ethereum.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon

Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

INFINIT is present on the following networks: Binance Smart Chain, Ethereum.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to

slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) binance_smart_chain, ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Verse World

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Verse World	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	68.49488	kWh/a

Qualitative information

S.4 Consensus Mechanism

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):
 - Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
 - Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.
2. Proof of Stake (PoS):
 - Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
 - Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.

- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.
- 2. Delegators:
 - Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.
- 3. Economic Security:
 - Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
 - Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.
2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.
3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.
4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



aixbt by Virtuals

AIXBT | 8762TQWQ6

Quantitative information

Quantitative sustainability indicators for aixbt by Virtuals

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	aixbt by Virtuals	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	68.05954	kWh/a

Qualitative information

S.4 Consensus Mechanism

aixbt by Virtuals is present on the following networks: Base, Ethereum, Solana.

Base does not operate its own consensus mechanism or decentralised validator set comparable to a Layer-1 blockchain. As an optimistic rollup Layer-2 network, Base relies on Ethereum's Proof-of-Stake consensus for the finality and settlement of data and state commitments posted to Ethereum Layer 1. Transaction ordering on Base is performed by a sequencer, currently operated by Coinbase. This sequencing function provides transaction ordering and execution on the Layer-2 network but does not constitute a decentralised consensus mechanism. The validity of Layer-2 state transitions is supported by an optimistic fault-proof mechanism, under which incorrect state commitments may be challenged during the applicable dispute period. Accordingly, Base's security model depends on Ethereum Layer 1 for settlement and finality, while Layer-2 transaction ordering remains dependent on the sequencer.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the

canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

aixbt by Virtuals is present on the following networks: Base, Ethereum, Solana.

Base does not have a native protocol token and does not operate a staking, validator reward or token issuance mechanism. Transaction fees on Base are paid in ETH. The economic incentives within the network are primarily related to transaction processing and network security. Transactions are executed on Base and periodically submitted to Ethereum Layer 1 in batches. As the cost of a Layer-1 submission is shared among multiple Layer-2 transactions, the average transaction cost per transaction may be lower than executing the same transactions directly on Ethereum Layer 1. The integrity of withdrawals from Base is supported by a fault-proof mechanism. Withdrawals are subject to a dispute period during which participants may challenge incorrect state commitments. The dispute process incorporates economic incentives intended to encourage honest behaviour and discourage invalid claims.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.

- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.
- 2. Delegators:
 - Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.
- 3. Economic Security:
 - Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
 - Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.
2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.
3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.
4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) base, ethereum, solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for SuperRare

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	SuperRare	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	67.50099	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.


BLEND

BLEND | GNL7G95JR

Quantitative information

Quantitative sustainability indicators for BLEND

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	BLEND	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	67.07556	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for OVERTAKE

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	OVERTAKE	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	65.64673	kWh/a

Qualitative information

S.4 Consensus Mechanism

OVERTAKE is present on the following networks: Binance Smart Chain, Sui.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

The Sui blockchain utilizes a Byzantine Fault Tolerant (BFT) consensus mechanism optimized for high throughput and low latency.

Core Components:

1. Mysten Consensus Protocol:

- The Sui consensus is based on Mysten Labs' Byzantine Fault Tolerance (BFT) protocol, which builds on principles of Practical Byzantine Fault Tolerance (pBFT) but introduces key optimizations for performance.
- Leaderless Design: Unlike traditional BFT models, Sui does not rely on a single leader to propose blocks. Validators can propose blocks simultaneously, increasing efficiency and reducing the risks associated with leader failure or attacks.
- Parallel Processing: Transactions can be processed in parallel, maximizing network throughput by utilizing multiple cores and threads. This allows for faster confirmation of transactions and high scalability.

2. Transaction Validation:

Validators are responsible for receiving transaction requests from clients and processing them. Each transaction includes digital signatures and must meet the network's rules to be considered valid. Validators can propose transactions simultaneously, unlike many other networks that require a sequential, leader-driven process.

3. Optimistic Execution:

Optimistic Consensus: Sui allows validators to process certain non-contentious, independent transactions without waiting for full consensus. This is known as optimistic execution and helps reduce transaction latency for many use cases, allowing for fast finality in most cases.

4. Finality and Latency:

The system only requires three rounds of communication between validators to finalize a transaction. This results in low-latency consensus and rapid transaction confirmation times, achieving scalability while maintaining security.

5. Fault Tolerance:

The system can tolerate up to one-third of validators being faulty or malicious without compromising the integrity of the consensus process.

S.5 Incentive Mechanisms and Applicable Fees

OVERTAKE is present on the following networks: Binance Smart Chain, Sui.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee

network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Security and Economic Incentives:

1. Validators:

Validators stake SUI tokens to participate in the consensus process. They earn rewards for validating transactions and securing the network.

2. Slashing:

Validators can be penalized (slashed) for malicious behavior, such as double-signing or failing to properly validate transactions. This helps maintain network security and incentivizes honest behavior.

3. Delegation:

Token holders can delegate their SUI tokens to trusted validators. In return, they share in the rewards earned by validators. This encourages widespread participation in securing the network.

Fees on the SUI Blockchain:

1. Transaction Fees:

Users pay transaction fees to validators for processing and confirming transactions. These fees are calculated based on the computational resources required to process the transaction. Fees are paid in SUI tokens, which is the native cryptocurrency of the Sui blockchain.

2. Dynamic Fee Model:

The transaction fees on Sui are dynamic, meaning they adjust based on network demand and the complexity of the transactions being processed.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) binance_smart_chain, sui is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Wrapped Axelar

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Wrapped Axelar	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	63.38853	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for gib

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	gib	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	61.59375	kWh/a

Qualitative information

S.4 Consensus Mechanism

Hedera Hashgraph operates on a unique Hashgraph consensus algorithm, a directed acyclic graph (DAG) system that diverges from traditional blockchain technology. It uses Asynchronous Byzantine Fault Tolerance (aBFT) to secure the network.

Core Components:

1. Hashgraph Consensus and aBFT:

Hedera Hashgraph's consensus mechanism achieves aBFT, which allows the network to tolerate malicious nodes without compromising security, ensuring high levels of fault tolerance and stability.

2. Gossip about Gossip Protocol:

The network employs a "Gossip about Gossip" protocol, where nodes share transaction information along with details of previous gossip events. This process allows each node to rapidly learn the entire network state, enhancing communication efficiency and minimizing latency.

3. Virtual Voting:

Hedera does not rely on traditional miners or stakers. Instead, it uses virtual voting, where nodes reach consensus by analyzing the gossip history and simulating votes based on the order and frequency of transactions received. Virtual voting eliminates the need for actual voting messages, reducing network congestion and speeding up consensus.

4. Deterministic Finality:

Once consensus is reached, transactions achieve deterministic finality instantly, making them irreversible and confirmed within seconds. This attribute is ideal for applications needing quick and irreversible transaction confirmations.

5. Staking for Network Security:

Hedera incorporates staking to bolster network security. HBAR holders can stake their tokens to support validator nodes, contributing to the network's resilience and encouraging long-term engagement in consensus operations.

S.5 Incentive Mechanisms and Applicable Fees

Hedera Hashgraph incentivizes network participation through transaction fees and staking rewards, with a structured and predictable fee model designed for enterprise use.

Incentive Mechanisms:

1. Staking Rewards for Nodes:

- HBAR Rewards for Node Operators: Node operators earn HBAR rewards for providing network security and processing transactions, incentivizing them to act honestly and support network stability.
- User Staking: HBAR holders can stake their tokens to support nodes. Staking rewards offer an additional incentive for token holders to engage in network operations, although the structure may evolve with network growth.

2. Service-Based Node Rewards:

Nodes receive rewards based on specific services they provide to the network, such as:

- Consensus Services: Reaching consensus and maintaining transaction order.
- File Storage: Storing data on the Hedera network.
- Smart Contract Processing: Supporting contract executions for decentralized applications.

Applicable Fees:

1. Predictable Transaction Fees: Hedera's fee structure is fixed and predictable, ensuring transparent costs for users and appealing to enterprise-grade applications. Transaction fees are paid in HBAR and are designed to be stable, making it easier for businesses to plan for usage costs.
2. Fee Allocation: All transaction fees collected in HBAR are distributed to network nodes as rewards, reinforcing their role in maintaining network integrity and processing transactions efficiently.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) hedera_hbar is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for HashPack

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	HashPack	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	61.59375	kWh/a

Qualitative information

S.4 Consensus Mechanism

Hedera Hashgraph operates on a unique Hashgraph consensus algorithm, a directed acyclic graph (DAG) system that diverges from traditional blockchain technology. It uses Asynchronous Byzantine Fault Tolerance (aBFT) to secure the network.

Core Components:

1. Hashgraph Consensus and aBFT:

Hedera Hashgraph's consensus mechanism achieves aBFT, which allows the network to tolerate malicious nodes without compromising security, ensuring high levels of fault tolerance and stability.

2. Gossip about Gossip Protocol:

The network employs a "Gossip about Gossip" protocol, where nodes share transaction information along with details of previous gossip events. This process allows each node to rapidly learn the entire network state, enhancing communication efficiency and minimizing latency.

3. Virtual Voting:

Hedera does not rely on traditional miners or stakers. Instead, it uses virtual voting, where nodes reach consensus by analyzing the gossip history and simulating votes based on the order and frequency of transactions received. Virtual voting eliminates the need for actual voting messages, reducing network congestion and speeding up consensus.

4. Deterministic Finality:

Once consensus is reached, transactions achieve deterministic finality instantly, making them irreversible and confirmed within seconds. This attribute is ideal for applications needing quick and irreversible transaction confirmations.

5. Staking for Network Security:

Hedera incorporates staking to bolster network security. HBAR holders can stake their tokens to support validator nodes, contributing to the network's resilience and encouraging long-term engagement in consensus operations.

S.5 Incentive Mechanisms and Applicable Fees

Hedera Hashgraph incentivizes network participation through transaction fees and staking rewards, with a structured and predictable fee model designed for enterprise use.

Incentive Mechanisms:

1. Staking Rewards for Nodes:

- HBAR Rewards for Node Operators: Node operators earn HBAR rewards for providing network security and processing transactions, incentivizing them to act honestly and support network stability.
- User Staking: HBAR holders can stake their tokens to support nodes. Staking rewards offer an additional incentive for token holders to engage in network operations, although the structure may evolve with network growth.

2. Service-Based Node Rewards:

Nodes receive rewards based on specific services they provide to the network, such as:

- Consensus Services: Reaching consensus and maintaining transaction order.
- File Storage: Storing data on the Hedera network.
- Smart Contract Processing: Supporting contract executions for decentralized applications.

Applicable Fees:

1. Predictable Transaction Fees: Hedera's fee structure is fixed and predictable, ensuring transparent costs for users and appealing to enterprise-grade applications. Transaction fees are paid in HBAR and are designed to be stable, making it easier for businesses to plan for usage costs.
2. Fee Allocation: All transaction fees collected in HBAR are distributed to network nodes as rewards, reinforcing their role in maintaining network integrity and processing transactions efficiently.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) hedera_hbar is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Venice Token

VVV | POSD47M0W

Quantitative information

Quantitative sustainability indicators for Venice Token

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Venice Token	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	61.33469	kWh/a

Qualitative information

S.4 Consensus Mechanism

Base does not operate its own consensus mechanism or decentralised validator set comparable to a Layer-1 blockchain. As an optimistic rollup Layer-2 network, Base relies on Ethereum's Proof-of-Stake consensus for the finality and settlement of data and state commitments posted to Ethereum Layer 1. Transaction ordering on Base is performed by a sequencer, currently operated by Coinbase. This sequencing function provides transaction ordering and execution on the Layer-2 network but does not constitute a decentralised consensus mechanism. The validity of Layer-2 state transitions is supported by an optimistic fault-proof mechanism, under which incorrect state commitments may be challenged during the applicable dispute period. Accordingly, Base's security model depends on Ethereum Layer 1 for settlement and finality, while Layer-2 transaction ordering remains dependent on the sequencer.

S.5 Incentive Mechanisms and Applicable Fees

Base does not have a native protocol token and does not operate a staking, validator reward or token issuance mechanism. Transaction fees on Base are paid in ETH. The economic incentives within the network are primarily related to transaction processing and network security. Transactions are executed on Base and periodically submitted to Ethereum Layer 1 in batches. As the cost of a Layer-1 submission is shared among multiple Layer-2 transactions, the average transaction cost per transaction may be lower than executing the same transactions directly on Ethereum Layer 1. The integrity of withdrawals from Base is supported by a fault-proof mechanism. Withdrawals are subject to a dispute period during which participants may challenge incorrect state commitments. The

dispute process incorporates economic incentives intended to encourage honest behaviour and discourage invalid claims.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) base is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Covalent X Token

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Covalent X Token	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	60.33964	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Ampleforth Governance

FORTH | 62SV6Q4QP

Quantitative information

Quantitative sustainability indicators for Ampleforth Governance

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Ampleforth Governance	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	59.63060	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Talus

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Talus	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	59.20884	kWh/a

Qualitative information

S.4 Consensus Mechanism

The Sui blockchain utilizes a Byzantine Fault Tolerant (BFT) consensus mechanism optimized for high throughput and low latency.

Core Components:

1. Mysten Consensus Protocol:

- The Sui consensus is based on Mysten Labs' Byzantine Fault Tolerance (BFT) protocol, which builds on principles of Practical Byzantine Fault Tolerance (pBFT) but introduces key optimizations for performance.
- Leaderless Design: Unlike traditional BFT models, Sui does not rely on a single leader to propose blocks. Validators can propose blocks simultaneously, increasing efficiency and reducing the risks associated with leader failure or attacks.
- Parallel Processing: Transactions can be processed in parallel, maximizing network throughput by utilizing multiple cores and threads. This allows for faster confirmation of transactions and high scalability.

2. Transaction Validation:

Validators are responsible for receiving transaction requests from clients and processing them. Each transaction includes digital signatures and must meet the network's rules to be considered valid. Validators can propose transactions simultaneously, unlike many other networks that require a sequential, leader-driven process.

3. Optimistic Execution:

Optimistic Consensus: Sui allows validators to process certain non-contentious, independent transactions without waiting for full consensus. This is known as optimistic execution and helps reduce transaction latency for many use cases, allowing for fast finality in most cases.

4. Finality and Latency:

The system only requires three rounds of communication between validators to finalize a transaction. This results in low-latency consensus and rapid transaction confirmation times, achieving scalability while maintaining security.

5. Fault Tolerance:

The system can tolerate up to one-third of validators being faulty or malicious without compromising the integrity of the consensus process.

S.5 Incentive Mechanisms and Applicable Fees

Security and Economic Incentives:

1. Validators:

Validators stake SUI tokens to participate in the consensus process. They earn rewards for validating transactions and securing the network.

2. Slashing:

Validators can be penalized (slashed) for malicious behavior, such as double-signing or failing to properly validate transactions. This helps maintain network security and incentivizes honest behavior.

3. Delegation:

Token holders can delegate their SUI tokens to trusted validators. In return, they share in the rewards earned by validators. This encourages widespread participation in securing the network.

Fees on the SUI Blockchain:

1. Transaction Fees:

Users pay transaction fees to validators for processing and confirming transactions. These fees are calculated based on the computational resources required to process the transaction. Fees are paid in SUI tokens, which is the native cryptocurrency of the Sui blockchain.

2. Dynamic Fee Model:

The transaction fees on Sui are dynamic, meaning they adjust based on network demand and the complexity of the transactions being processed.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) sui is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for TanSSI

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	TanSSI	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	58.63794	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for CelerToken

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	CelerToken	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	58.63732	kWh/a

Qualitative information

S.4 Consensus Mechanism

CelerToken is present on the following networks: Binance Smart Chain, Ethereum.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon

Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

CelerToken is present on the following networks: Binance Smart Chain, Ethereum.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to

slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) binance_smart_chain, ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for AlphaToken

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	AlphaToken	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	57.90824	kWh/a

Qualitative information

S.4 Consensus Mechanism

AlphaToken is present on the following networks: Avalanche, Binance Smart Chain, Ethereum.

The Avalanche C-Chain uses the Snowman++ consensus mechanism, which is Avalanche's consensus model for linear blockchains and is implemented through the ProposerVM wrapper. Under this model, validators repeatedly query a small random subset of other validators and converge on a preferred block once the required confidence thresholds are met. Only Primary Network validators are entitled to validate the C-Chain. To participate as a validator on Avalanche mainnet, a node must stake a minimum number of token. Token holders may also participate indirectly by delegating an existing validator. Validator identity and admission to staking require the relevant staking credentials, including BLS proofs of possession under the current staking framework. For block production, Snowman++ uses stake-weighted proposer windows. Through the ProposerVM, block-building opportunities are assigned to proposers in 5-second windows, after which block production may fall back more broadly to validators if necessary. This mechanism is intended to regulate block production while preserving network liveness. Consensus voting itself remains based on repeated sub-sampled polling rather than fixed validator committees. Avalanche documentation describes the finality model as sub-second and treated by the protocol as final and irreversible once accepted, while noting that safety is probabilistic in the formal sense because the probability of conflicting acceptance can be reduced to an arbitrarily low level through the protocol parameters. The protocol does not rely on slashing of staked principal. Instead, validator reward eligibility depends on compliance with protocol conditions, including uptime requirements.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum’s consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

AlphaToken is present on the following networks: Avalanche, Binance Smart Chain, Ethereum.

The Avalanche C-Chain is secured economically through the native AVAX token. Validator incentives are based primarily on staking rewards, not on redistribution of C-Chain transaction fees. A fixed amount of 360 million AVAX was minted at genesis, while additional AVAX is minted over time as validator rewards, subject to Avalanche’s capped token supply framework. Validator rewards are paid at the end of the staking period and are determined by factors such as the validator’s stake and compliance with staking conditions. Unlike some proof-of-stake systems, the Avalanche Primary Network does not use slashing of bonded principal as an ordinary penalty mechanism. Instead, the main protocol-level economic consequence for underperformance is the loss of reward eligibility. Where a validator fails to satisfy the applicable uptime requirement during its staking term, that validator does not receive the corresponding staking reward. Transaction fees apply on the C-Chain for transfers and smart-contract execution. The fee model follows EIP-1559 logic, meaning that transactions are priced through a dynamic base fee mechanism. In contrast to Ethereum’s validator tip model, C-Chain transaction fees are burned rather than distributed to validators. This means that C-Chain fees function as a supply-reduction mechanism and are intended in part to offset inflation arising from the minting of validator rewards. In addition to ordinary transaction and smart-contract execution fees, Avalanche documentation also recognises protocol fees in connection with other network operations on other chains of the Primary Network, such as certain import or export operations and staking-related actions. However, for the C-Chain itself, the core applicable fee

category is the gas fee for transaction inclusion and contract execution, and those fees are handled through the protocol burn mechanism rather than paid to validators or a treasury.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) avalanche, binance_smart_chain, ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is

determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Litentry

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Litentry	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	56.01448	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for sudeng

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	sudeng	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	55.98946	kWh/a

Qualitative information

S.4 Consensus Mechanism

The Sui blockchain utilizes a Byzantine Fault Tolerant (BFT) consensus mechanism optimized for high throughput and low latency.

Core Components:

1. Mysten Consensus Protocol:

- The Sui consensus is based on Mysten Labs' Byzantine Fault Tolerance (BFT) protocol, which builds on principles of Practical Byzantine Fault Tolerance (pBFT) but introduces key optimizations for performance.
- Leaderless Design: Unlike traditional BFT models, Sui does not rely on a single leader to propose blocks. Validators can propose blocks simultaneously, increasing efficiency and reducing the risks associated with leader failure or attacks.
- Parallel Processing: Transactions can be processed in parallel, maximizing network throughput by utilizing multiple cores and threads. This allows for faster confirmation of transactions and high scalability.

2. Transaction Validation:

Validators are responsible for receiving transaction requests from clients and processing them. Each transaction includes digital signatures and must meet the network's rules to be considered valid. Validators can propose transactions simultaneously, unlike many other networks that require a sequential, leader-driven process.

3. Optimistic Execution:

Optimistic Consensus: Sui allows validators to process certain non-contentious, independent transactions without waiting for full consensus. This is known as optimistic execution and helps reduce transaction latency for many use cases, allowing for fast finality in most cases.

4. Finality and Latency:

The system only requires three rounds of communication between validators to finalize a transaction. This results in low-latency consensus and rapid transaction confirmation times, achieving scalability while maintaining security.

5. Fault Tolerance:

The system can tolerate up to one-third of validators being faulty or malicious without compromising the integrity of the consensus process.

S.5 Incentive Mechanisms and Applicable Fees

Security and Economic Incentives:

1. Validators:

Validators stake SUI tokens to participate in the consensus process. They earn rewards for validating transactions and securing the network.

2. Slashing:

Validators can be penalized (slashed) for malicious behavior, such as double-signing or failing to properly validate transactions. This helps maintain network security and incentivizes honest behavior.

3. Delegation:

Token holders can delegate their SUI tokens to trusted validators. In return, they share in the rewards earned by validators. This encourages widespread participation in securing the network.

Fees on the SUI Blockchain:

1. Transaction Fees:

Users pay transaction fees to validators for processing and confirming transactions. These fees are calculated based on the computational resources required to process the transaction. Fees are paid in SUI tokens, which is the native cryptocurrency of the Sui blockchain.

2. Dynamic Fee Model:

The transaction fees on Sui are dynamic, meaning they adjust based on network demand and the complexity of the transactions being processed.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) sui is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Balancer

BAL | Q8QDMDD7D

Quantitative information

Quantitative sustainability indicators for Balancer

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Balancer	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	55.13644	kWh/a

Qualitative information

S.4 Consensus Mechanism

Balancer is present on the following networks: Arbitrum, Ethereum, Gnosis Chain, Optimism, Polygon.

Arbitrum is an optimistic rollup that processes transactions on a Layer 2 network and relies on Ethereum for data availability and settlement. A sequencer orders incoming transactions, executes them and publishes compressed transaction batches to Ethereum. Arbitrum nodes can independently reconstruct and verify the resulting Layer 2 state using the transaction data published on the parent chain. Validators submit assertions representing the state of the network. Under the BoLD dispute protocol, conflicting or incorrect assertions may be challenged and resolved through an interactive fraud-proof process on Ethereum. Once an assertion has been confirmed and the applicable challenge process has been completed, the corresponding Layer 2 state is accepted for settlement purposes.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the

canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

Gnosis Chain – Consensus Mechanism Gnosis Chain employs a dual-layer structure to balance scalability and security, using Proof of Stake (PoS) for its core consensus and transaction finality.

Core Components:

- **Two-Layer Structure** Layer 1: Gnosis Beacon Chain The Gnosis Beacon Chain operates on a Proof of Stake (PoS) mechanism, acting as the security and consensus backbone. Validators stake GNO tokens on the Beacon Chain and validate transactions, ensuring network security and finality.
- **Layer 2: Gnosis xDai Chain** processes transactions and dApp interactions, providing high-speed, low-cost transactions. Layer 2 transaction data is finalized on the Gnosis Beacon Chain, creating an integrated framework where Layer 1 ensures security and finality, and Layer 2 enhances scalability. **Validator Role and Staking** Validators on the Gnosis Beacon Chain stake GNO tokens and participate in consensus by validating blocks. This setup ensures that validators have an economic interest in maintaining the security and integrity of both the Beacon Chain (Layer 1) and the xDai Chain (Layer 2). **Cross-Layer Security** Transactions on Layer 2 are ultimately finalized on Layer 1, providing security and finality to all activities on the Gnosis Chain. This architecture allows Gnosis Chain to combine the speed and cost efficiency of Layer 2 with the security guarantees of a PoS-secured Layer 1, making it suitable for both high-frequency applications and secure asset management.

Since Optimism is based on Ethereum, it ultimately inherits its security via the Ethereum blockchain and the proof-of-stake consensus. Within the rollup system, Optimism relies on a "fault proof" procedure. By default, transactions are assumed to be correct ("optimistic"). Only in the event of suspected faults is a fault proof initiated, in which incorrect transactions can be challenged by challengers. This model allows for high efficiency while ensuring correctness.

Polygon PoS is an EVM-compatible sidechain that operates with a Proof-of-Stake consensus mechanism and periodically submits checkpoints to the Ethereum mainnet. The network maintains its own validator set and processes transactions independently from Ethereum, while using Ethereum smart contracts for staking-related functions and checkpoint verification. Polygon PoS therefore uses Ethereum as a staking and checkpointing layer, but does not rely on Ethereum for full transaction execution or transaction data availability. The Polygon-side architecture consists of two primary node layers. The Bor layer is responsible for transaction execution and block production. The Heimdall layer is responsible for validator coordination, staking-related monitoring, consensus, and checkpoint finalisation. Heimdall is based on Cosmos SDK and CometBFT and aggregates blocks produced by Bor into periodic Merkle-root checkpoints that are submitted to smart contracts on the Ethereum mainnet. Validators participate in the network by staking POL tokens. Token holders may delegate POL tokens to validators, contributing to the validator's effective stake and participating indirectly in network validation. Following the Rio upgrade, Polygon PoS uses a Validator-Elected Block Producer model. Under this model, validators elect the block producer or block producers for a span, rather than relying on the previous stake-weighted selection model for multiple block producers over shorter intervals. Block production and transaction execution are performed on the Bor layer, while Heimdall validators coordinate consensus and checkpoint finalisation. At regular intervals, Heimdall validators aggregate blocks into a Merkle root and submit the resulting checkpoint to Ethereum smart contracts. These checkpoints provide an additional verification layer and support cross-chain verification, including in the context of asset transfers between Polygon PoS and

Ethereum. This design enables higher transaction throughput and lower transaction costs than the Ethereum mainnet, while maintaining a technical connection to Ethereum through staking contracts and periodic checkpointing. Polygon PoS should therefore be understood as an independent sidechain or commit-chain architecture, rather than a rollup that inherits full execution and data availability security from Ethereum.

S.5 Incentive Mechanisms and Applicable Fees

Balancer is present on the following networks: Arbitrum, Ethereum, Gnosis Chain, Optimism, Polygon.

Transactions on Arbitrum are subject to fees paid in ETH. The total fee generally consists of a Layer 2 execution component, which covers the computational resources required to process the transaction, and a parent-chain data component, which reflects the cost of publishing compressed transaction data to Ethereum. The amount payable therefore depends on the computational complexity of the transaction, the volume and compressibility of its data and the prevailing cost of data publication on Ethereum. Participants that submit or challenge state assertions under the dispute protocol must provide economic bonds. These bonds are intended to discourage incorrect assertions and compensate successful participants in the dispute process. Withdrawals through the canonical bridge become executable after the relevant Layer 2 state has been confirmed and the applicable challenge period has elapsed.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

The Gnosis Chain's incentive and fee models encourage both validator participation and network accessibility, using a dual-token system to maintain low transaction costs and effective staking rewards.

Incentive Mechanisms:

- Staking Rewards for Validators GNO Rewards: Validators earn staking rewards in GNO tokens for their participation in consensus and securing the network.
- Delegation Model: GNO holders who do not operate validator nodes can delegate their GNO tokens to validators, allowing them to share in staking rewards and encouraging broader participation in network security.
- Dual-Token Model GNO: Used for staking, governance, and validator rewards, GNO aligns long-term network security incentives with token holders' economic interests.
- xDai: Serves as the primary transaction currency, providing stable and low-cost transactions. The use of a stable token (xDai) for fees minimizes volatility and offers predictable costs for users and developers.

Applicable Fees:

Transaction Fees in xDai Users pay transaction fees in xDai, the stable fee token, making costs affordable and predictable. This model is especially suited for high-frequency applications and dApps where low transaction fees are essential. xDai transaction fees are redistributed to validators as part of their compensation, aligning their rewards with network activity. Delegated Staking Rewards Through delegated staking, GNO holders can earn a share of staking rewards by delegating their tokens to active validators, promoting user participation in network security without requiring direct involvement in consensus operations.

Optimism charges lower transaction fees than Ethereum Layer 1, as transactions are bundled in the rollup and written to the Ethereum main chain in compressed form. Gas fees on Optimism continue to be paid in ETH. The incentive model is based on increased efficiency for users (lower fees, faster confirmation) and on the role of sequencers. Sequencers are central actors who collect, organize, and include transactions in the rollup. Their revenue comes from the gas fees they charge.

Polygon PoS uses economic incentives to support validator participation, transaction processing, and network operation. Validators stake POL tokens and participate in block production, validation, voting, and checkpoint finalisation. Validators may receive rewards connected to their participation in the network, including rewards linked to validation activities and transaction-fee allocation, depending on the applicable protocol rules. Token holders who do not operate validator infrastructure may delegate POL tokens to validators. Delegators may receive a share of rewards attributable to the validator to whom they delegate, subject to the validator's commission and applicable protocol rules. Delegation increases the validator's effective stake and may affect its role in the validator set and related network processes. Following the Rio upgrade, Polygon PoS introduced a Validator-Elected Block Producer model, under which validators elect the block producer or block producers for a span. Publicly described protocol changes associated with this model also provide for redistribution of fees, including maximum extractable value-related fees where applicable, to non-producing validators under the relevant protocol design. This changes the incentive structure from the previous model in which block production selection was more directly described by reference to stake-weighted producer selection. Polygon PoS includes protocol specifications for validator penalties, including slashing-related concepts. Transactions on Polygon PoS require payment of network fees in POL. Fees apply to ordinary token transfers, smart contract deployment, and smart contract interaction. The amount of fees may vary depending on network demand, transaction complexity, and computational resources required. Because Polygon PoS processes transactions independently from Ethereum, transaction fees are generally designed to be lower than equivalent activity on the Ethereum mainnet, although actual fees may change according to network conditions and protocol parameters.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) arbitrum, ethereum, gnosis_chain, optimism, polygon is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a

precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Echelon Prime

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Echelon Prime	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	53.16644	kWh/a

Qualitative information

S.4 Consensus Mechanism

Echelon Prime is present on the following networks: Base, Ethereum.

Base does not operate its own consensus mechanism or decentralised validator set comparable to a Layer-1 blockchain. As an optimistic rollup Layer-2 network, Base relies on Ethereum's Proof-of-Stake consensus for the finality and settlement of data and state commitments posted to Ethereum Layer 1. Transaction ordering on Base is performed by a sequencer, currently operated by Coinbase. This sequencing function provides transaction ordering and execution on the Layer-2 network but does not constitute a decentralised consensus mechanism. The validity of Layer-2 state transitions is supported by an optimistic fault-proof mechanism, under which incorrect state commitments may be challenged during the applicable dispute period. Accordingly, Base's security model depends on Ethereum Layer 1 for settlement and finality, while Layer-2 transaction ordering remains dependent on the sequencer.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the

canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Echelon Prime is present on the following networks: Base, Ethereum.

Base does not have a native protocol token and does not operate a staking, validator reward or token issuance mechanism. Transaction fees on Base are paid in ETH. The economic incentives within the network are primarily related to transaction processing and network security. Transactions are executed on Base and periodically submitted to Ethereum Layer 1 in batches. As the cost of a Layer-1 submission is shared among multiple Layer-2 transactions, the average transaction cost per transaction may be lower than executing the same transactions directly on Ethereum Layer 1. The integrity of withdrawals from Base is supported by a fault-proof mechanism. Withdrawals are subject to a dispute period during which participants may challenge incorrect state commitments. The dispute process incorporates economic incentives intended to encourage honest behaviour and discourage invalid claims.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) base, ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Bounce Token

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Bounce Token	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	52.21192	kWh/a

Qualitative information

S.4 Consensus Mechanism

Bounce Token is present on the following networks: Binance Smart Chain, Ethereum.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon

Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Bounce Token is present on the following networks: Binance Smart Chain, Ethereum.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to

slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) binance_smart_chain, ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Marinade

MNDE | KP2V762CJ

Quantitative information

Quantitative sustainability indicators for Marinade

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Marinade	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	51.60840	kWh/a

Qualitative information

S.4 Consensus Mechanism

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.

- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.
- 2. Delegators:
 - Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.
- 3. Economic Security:
 - Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
 - Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.
2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.
3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.
4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Vultisig Token

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Vultisig Token	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	51.40569	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for zkPass

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	zkPass	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	50.83845	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for YOM

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	YOM	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	50.67838	kWh/a

Qualitative information

S.4 Consensus Mechanism

The Avalanche C-Chain uses the Snowman++ consensus mechanism, which is Avalanche’s consensus model for linear blockchains and is implemented through the ProposerVM wrapper. Under this model, validators repeatedly query a small random subset of other validators and converge on a preferred block once the required confidence thresholds are met. Only Primary Network validators are entitled to validate the C-Chain. To participate as a validator on Avalanche mainnet, a node must stake a minimum number of token. Token holders may also participate indirectly by delegating an existing validator. Validator identity and admission to staking require the relevant staking credentials, including BLS proofs of possession under the current staking framework. For block production, Snowman++ uses stake-weighted proposer windows. Through the ProposerVM, block-building opportunities are assigned to proposers in 5-second windows, after which block production may fall back more broadly to validators if necessary. This mechanism is intended to regulate block production while preserving network liveness. Consensus voting itself remains based on repeated sub-sampled polling rather than fixed validator committees. Avalanche documentation describes the finality model as sub-second and treated by the protocol as final and irreversible once accepted, while noting that safety is probabilistic in the formal sense because the probability of conflicting acceptance can be reduced to an arbitrarily low level through the protocol parameters. The protocol does not rely on slashing of staked principal. Instead, validator reward eligibility depends on compliance with protocol conditions, including uptime requirements.

S.5 Incentive Mechanisms and Applicable Fees

The Avalanche C-Chain is secured economically through the native AVAX token. Validator incentives are based primarily on staking rewards, not on redistribution of C-Chain transaction fees. A fixed amount of 360 million AVAX was minted at genesis, while additional AVAX is minted over time as validator rewards, subject to Avalanche's capped token supply framework. Validator rewards are paid at the end of the staking period and are determined by factors such as the validator's stake and compliance with staking conditions. Unlike some proof-of-stake systems, the Avalanche Primary Network does not use slashing of bonded principal as an ordinary penalty mechanism. Instead, the main protocol-level economic consequence for underperformance is the loss of reward eligibility. Where a validator fails to satisfy the applicable uptime requirement during its staking term, that validator does not receive the corresponding staking reward. Transaction fees apply on the C-Chain for transfers and smart-contract execution. The fee model follows EIP-1559 logic, meaning that transactions are priced through a dynamic base fee mechanism. In contrast to Ethereum's validator tip model, C-Chain transaction fees are burned rather than distributed to validators. This means that C-Chain fees function as a supply-reduction mechanism and are intended in part to offset inflation arising from the minting of validator rewards. In addition to ordinary transaction and smart-contract execution fees, Avalanche documentation also recognises protocol fees in connection with other network operations on other chains of the Primary Network, such as certain import or export operations and staking-related actions. However, for the C-Chain itself, the core applicable fee category is the gas fee for transaction inclusion and contract execution, and those fees are handled through the protocol burn mechanism rather than paid to validators or a treasury.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) avalanche is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for openloot

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	openloot	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	50.07427	kWh/a

Qualitative information

S.4 Consensus Mechanism

openloot is present on the following networks: Binance Smart Chain, Ethereum.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon

Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

openloot is present on the following networks: Binance Smart Chain, Ethereum.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to

slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) binance_smart_chain, ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for IDEX Token

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	IDEX Token	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	49.70398	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Bluwhale

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Bluwhale	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	49.33532	kWh/a

Qualitative information

S.4 Consensus Mechanism

Bluwhale is present on the following networks: Binance Smart Chain, Sui.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

The Sui blockchain utilizes a Byzantine Fault Tolerant (BFT) consensus mechanism optimized for high throughput and low latency.

Core Components:

1. Mysten Consensus Protocol:

- The Sui consensus is based on Mysten Labs' Byzantine Fault Tolerance (BFT) protocol, which builds on principles of Practical Byzantine Fault Tolerance (pBFT) but introduces key optimizations for performance.
- Leaderless Design: Unlike traditional BFT models, Sui does not rely on a single leader to propose blocks. Validators can propose blocks simultaneously, increasing efficiency and reducing the risks associated with leader failure or attacks.
- Parallel Processing: Transactions can be processed in parallel, maximizing network throughput by utilizing multiple cores and threads. This allows for faster confirmation of transactions and high scalability.

2. Transaction Validation:

Validators are responsible for receiving transaction requests from clients and processing them. Each transaction includes digital signatures and must meet the network's rules to be considered valid. Validators can propose transactions simultaneously, unlike many other networks that require a sequential, leader-driven process.

3. Optimistic Execution:

Optimistic Consensus: Sui allows validators to process certain non-contentious, independent transactions without waiting for full consensus. This is known as optimistic execution and helps reduce transaction latency for many use cases, allowing for fast finality in most cases.

4. Finality and Latency:

The system only requires three rounds of communication between validators to finalize a transaction. This results in low-latency consensus and rapid transaction confirmation times, achieving scalability while maintaining security.

5. Fault Tolerance:

The system can tolerate up to one-third of validators being faulty or malicious without compromising the integrity of the consensus process.

S.5 Incentive Mechanisms and Applicable Fees

Bluwhale is present on the following networks: Binance Smart Chain, Sui.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee

network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Security and Economic Incentives:

1. Validators:

Validators stake SUI tokens to participate in the consensus process. They earn rewards for validating transactions and securing the network.

2. Slashing:

Validators can be penalized (slashed) for malicious behavior, such as double-signing or failing to properly validate transactions. This helps maintain network security and incentivizes honest behavior.

3. Delegation:

Token holders can delegate their SUI tokens to trusted validators. In return, they share in the rewards earned by validators. This encourages widespread participation in securing the network.

Fees on the SUI Blockchain:

1. Transaction Fees:

Users pay transaction fees to validators for processing and confirming transactions. These fees are calculated based on the computational resources required to process the transaction. Fees are paid in SUI tokens, which is the native cryptocurrency of the Sui blockchain.

2. Dynamic Fee Model:

The transaction fees on Sui are dynamic, meaning they adjust based on network demand and the complexity of the transactions being processed.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) binance_smart_chain, sui is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Sweat Economy

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Sweat Economy	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	49.06584	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Adventure Gold

AGLD | 2QNVF4SDM

Quantitative information

Quantitative sustainability indicators for Adventure Gold

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Adventure Gold	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	48.64042	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.


Solstice

SLX | S6PKQMKSC

Quantitative information

Quantitative sustainability indicators for Solstice

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Solstice	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	48.53694	kWh/a

Qualitative information

S.4 Consensus Mechanism

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.

- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.
- 2. Delegators:
 - Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.
- 3. Economic Security:
 - Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
 - Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.
2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.
3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.
4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for GMX

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	GMX	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	48.01529	kWh/a

Qualitative information

S.4 Consensus Mechanism

GMX is present on the following networks: Arbitrum, Avalanche.

Arbitrum is an optimistic rollup that processes transactions on a Layer 2 network and relies on Ethereum for data availability and settlement. A sequencer orders incoming transactions, executes them and publishes compressed transaction batches to Ethereum. Arbitrum nodes can independently reconstruct and verify the resulting Layer 2 state using the transaction data published on the parent chain. Validators submit assertions representing the state of the network. Under the BoLD dispute protocol, conflicting or incorrect assertions may be challenged and resolved through an interactive fraud-proof process on Ethereum. Once an assertion has been confirmed and the applicable challenge process has been completed, the corresponding Layer 2 state is accepted for settlement purposes.

The Avalanche C-Chain uses the Snowman++ consensus mechanism, which is Avalanche's consensus model for linear blockchains and is implemented through the ProposerVM wrapper. Under this model, validators repeatedly query a small random subset of other validators and converge on a preferred block once the required confidence thresholds are met. Only Primary Network validators are entitled to validate the C-Chain. To participate as a validator on Avalanche mainnet, a node must stake a minimum number of token. Token holders may also participate indirectly by delegating an existing validator. Validator identity and admission to staking require the relevant staking credentials, including BLS proofs of possession under the current staking framework. For block production, Snowman++ uses stake-weighted proposer windows. Through the ProposerVM, block-building

opportunities are assigned to proposers in 5-second windows, after which block production may fall back more broadly to validators if necessary. This mechanism is intended to regulate block production while preserving network liveness. Consensus voting itself remains based on repeated sub-sampled polling rather than fixed validator committees. Avalanche documentation describes the finality model as sub-second and treated by the protocol as final and irreversible once accepted, while noting that safety is probabilistic in the formal sense because the probability of conflicting acceptance can be reduced to an arbitrarily low level through the protocol parameters. The protocol does not rely on slashing of staked principal. Instead, validator reward eligibility depends on compliance with protocol conditions, including uptime requirements.

S.5 Incentive Mechanisms and Applicable Fees

GMX is present on the following networks: Arbitrum, Avalanche.

Transactions on Arbitrum are subject to fees paid in ETH. The total fee generally consists of a Layer 2 execution component, which covers the computational resources required to process the transaction, and a parent-chain data component, which reflects the cost of publishing compressed transaction data to Ethereum. The amount payable therefore depends on the computational complexity of the transaction, the volume and compressibility of its data and the prevailing cost of data publication on Ethereum. Participants that submit or challenge state assertions under the dispute protocol must provide economic bonds. These bonds are intended to discourage incorrect assertions and compensate successful participants in the dispute process. Withdrawals through the canonical bridge become executable after the relevant Layer 2 state has been confirmed and the applicable challenge period has elapsed.

The Avalanche C-Chain is secured economically through the native AVAX token. Validator incentives are based primarily on staking rewards, not on redistribution of C-Chain transaction fees. A fixed amount of 360 million AVAX was minted at genesis, while additional AVAX is minted over time as validator rewards, subject to Avalanche's capped token supply framework. Validator rewards are paid at the end of the staking period and are determined by factors such as the validator's stake and compliance with staking conditions. Unlike some proof-of-stake systems, the Avalanche Primary Network does not use slashing of bonded principal as an ordinary penalty mechanism. Instead, the main protocol-level economic consequence for underperformance is the loss of reward eligibility. Where a validator fails to satisfy the applicable uptime requirement during its staking term, that validator does not receive the corresponding staking reward. Transaction fees apply on the C-Chain for transfers and smart-contract execution. The fee model follows EIP-1559 logic, meaning that transactions are priced through a dynamic base fee mechanism. In contrast to Ethereum's validator tip model, C-Chain transaction fees are burned rather than distributed to validators. This means that C-Chain fees function as a supply-reduction mechanism and are intended in part to offset inflation arising from the minting of validator rewards. In addition to ordinary transaction and smart-contract execution fees, Avalanche documentation also recognises protocol fees in connection with other network operations on other chains of the Primary Network, such as certain import or export operations and staking-related actions. However, for the C-Chain itself, the core applicable fee category is the gas fee for transaction inclusion and contract execution, and those fees are handled through the protocol burn mechanism rather than paid to validators or a treasury.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) arbitrum, avalanche is calculated first. For the energy consumption of the token, a fraction of the

energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.


Nosana

NOS | FXD9KSSZF

Quantitative information

Quantitative sustainability indicators for Nosana

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Nosana	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	47.86562	kWh/a

Qualitative information

S.4 Consensus Mechanism

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.

- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.
- 2. Delegators:
 - Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.
- 3. Economic Security:
 - Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
 - Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.
2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.
3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.
4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for DGRID

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	DGRID	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	47.86096	kWh/a

Qualitative information

S.4 Consensus Mechanism

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

S.5 Incentive Mechanisms and Applicable Fees

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that

proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) `binance_smart_chain` is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Omni Network

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Omni Network	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	47.78957	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.


Grass

GRASS | MNCR2MKHP

Quantitative information

Quantitative sustainability indicators for Grass

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Grass	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	47.66036	kWh/a

Qualitative information

S.4 Consensus Mechanism

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.

- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.
- 2. Delegators:
 - Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.
- 3. Economic Security:
 - Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
 - Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.
2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.
3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.
4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.


KERNEL

KERNEL | L6N3VM7CM

Quantitative information

Quantitative sustainability indicators for KERNEL

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	KERNEL	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	46.44238	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.


SUNDOG

SUNDOG | /

Quantitative information

Quantitative sustainability indicators for SUNDOG

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	SUNDOG	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	44.10736	kWh/a

Qualitative information

S.4 Consensus Mechanism

The Tron blockchain operates on a Delegated Proof of Stake (DPoS) consensus mechanism, designed to improve scalability, transaction speed, and energy efficiency.

Core Components:

1. Delegated Proof of Stake (DPoS): Tron uses DPoS, where token holders vote for a group of delegates known as Super Representatives (SRs) who are responsible for validating transactions and producing new blocks on the network. Token holders can vote for SRs based on their stake in the Tron network, and the top 27 SRs (or more, depending on the protocol version) are selected to participate in the block production process. SRs take turns producing blocks, which are added to the blockchain. This is done on a rotational basis to ensure decentralization and prevent control by a small group of validators.
2. Block Production: The Super Representatives generate new blocks and confirm transactions. The Tron blockchain achieves block finality quickly, with block production occurring every 3 seconds, making it highly efficient and capable of processing thousands of transactions per second.
3. Voting and Governance: Tron's DPoS system also allows token holders to vote on important network decisions, such as protocol upgrades and changes to the system's parameters. Voting power is proportional to the amount of TRX (Tron's native token) that a user holds and chooses to stake. This provides a governance system where the community can actively participate in decision-making.

4. Super Representatives: The Super Representatives play a crucial role in maintaining the security and stability of the Tron blockchain. They are responsible for validating transactions, proposing new blocks, and ensuring the overall functionality of the network. Super Representatives are incentivized with block rewards (newly minted TRX tokens) and transaction fees for their work.

S.5 Incentive Mechanisms and Applicable Fees

The Tron blockchain uses a Delegated Proof of Stake (DPoS) consensus mechanism to secure its network and incentivize participation.

Incentive Mechanism:

1. Super Representatives (SRs) Rewards:
 - Block Rewards: Super Representatives (SRs), who are elected by TRX holders, are rewarded for producing blocks. Each block they produce comes with a block reward in the form of TRX tokens.
 - Transaction Fees: In addition to block rewards, SRs receive transaction fees for validating transactions and including them in blocks. This ensures they are incentivized to process transactions efficiently.
2. Voting and Delegation:
 - TRX Staking: TRX holders can stake their tokens and vote for Super Representatives (SRs). When TRX holders vote, they delegate their voting power to SRs, which allows SRs to earn rewards in the form of newly minted TRX tokens.
 - Delegator Rewards: Token holders who delegate their votes to an SR can also receive a share of the rewards. This means delegators share in the block rewards and transaction fees that the SR earns.
 - Incentivizing Participation: The more tokens a user stakes, the more voting power they have, which encourages participation in governance and network security.
3. Incentive for SRs:

SRs are also incentivized to maintain the health and performance of the network. Their reputation and continued election depend on their ability to produce blocks consistently and efficiently process transactions.

Applicable Fees:

1. Transaction Fees:
 - Fee Calculation: Users must pay transaction fees to have their transactions processed. The transaction fee varies based on the complexity of the transaction and the network's current demand. This is paid in TRX tokens.
 - Fee Distribution: Transaction fees are distributed to Super Representatives (SRs), giving them an ongoing income to maintain and support the network.
2. Storage Fees:

Tron charges storage fees for data storage on the blockchain. This includes storing smart contracts, tokens, and other data on the network. Users are required to pay these fees in TRX tokens to store data.
3. Energy and Bandwidth:

Energy: Tron uses a resource model that allows users to access network resources like bandwidth and energy through staking. Users who stake their TRX tokens receive energy

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) tron is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Spacecoin

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Spacecoin	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	43.67711	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Open Loot

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Open Loot	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	43.53530	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Bricks

BRICK | ZK1ZVS368

Quantitative information

Quantitative sustainability indicators for Bricks

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Bricks	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	42.04800	kWh/a

Qualitative information

S.4 Consensus Mechanism

Arbitrum Nova is a Layer 2 blockchain built using Arbitrum's AnyTrust technology. It relies on a data availability committee to sign off on blocks, rather than posting all data to Ethereum, enabling lower fees while inheriting Ethereum's base layer security for final settlement.

S.5 Incentive Mechanisms and Applicable Fees

Transaction fees on Arbitrum Nova are paid in ETH and kept minimal due to reduced data costs. There is no native token; incentives and security assumptions depend on the integrity of the committee and Ethereum as the settlement layer.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum_arbitrum_nova is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of

participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



HashKey Platform Token

HSK | 2HLT11X01

Quantitative information

Quantitative sustainability indicators for HashKey Platform Token

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	HashKey Platform Token	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	41.19546	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Serum

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Serum	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	40.97146	kWh/a

Qualitative information

S.4 Consensus Mechanism

Serum is present on the following networks: Binance Smart Chain, Ethereum, Solana, Terra Classic.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon

Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

- Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

Terra blockchain operates on a Delegated Proof of Stake (DPoS) consensus mechanism, which ensures fast, scalable, and secure transaction processing.

Core Components:

- Delegated Proof of Stake (DPoS):

- Validators: A limited set of validators are responsible for validating transactions, proposing blocks, and securing the network. Validators are selected based on the amount of LUNA tokens staked, either directly or delegated by token holders.
- Delegation: LUNA holders can delegate their tokens to validators, allowing them to participate in staking rewards without running their own validator nodes.
- Rotational Leadership: Validators are selected in a round-robin manner to propose new blocks, ensuring fairness and efficiency in block production.

- Tendermint BFT (Byzantine Fault Tolerance):

- Terra integrates the Tendermint Core consensus engine, providing fast block finality and resilience against up to one-third of malicious or faulty validators.
- Finality: Transactions are confirmed once a block is added, reducing the risk of chain reorganizations and ensuring immediate finality.
- Governance Integration: LUNA token holders participate in governance by voting on proposals related to protocol upgrades, parameter changes, and community decisions, aligning stakeholder incentives with network health.

S.5 Incentive Mechanisms and Applicable Fees

Serum is present on the following networks: Binance Smart Chain, Ethereum, Solana, Terra Classic.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators.

This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.
- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.

2. Delegators:

- Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.

3. Economic Security:

- Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
- Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.

2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.

3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.

4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

The Terra blockchain's incentive structure is designed to reward network participants, ensure security, and sustain ecosystem growth, while its fee model aligns with its focus on scalability and cost-efficiency.

Incentive Mechanisms:

- Validators: Validators earn staking rewards for their role in securing the network and validating transactions. Rewards are distributed in LUNA tokens, derived from transaction fees and seigniorage revenue.
- Delegators: LUNA holders who delegate their tokens to validators receive a share of staking rewards, proportional to the amount delegated, incentivizing broad participation.
- Seigniorage Rewards: Validators and delegators benefit from seigniorage revenue, generated when new stablecoins (e.g., TerraUSD) are minted. A portion of this revenue is allocated to reward LUNA stakers.
- Stability Incentives: LUNA token holders are incentivized to stake and participate in governance to maintain the stability of Terra's ecosystem and its algorithmic stablecoins.
- Governance Participation Rewards: Validators and delegators have governance voting rights, enabling them to shape the network's future. Participation in governance aligns incentives with long-term ecosystem health.

Applicable Fees:

- Transaction Fees: Users pay fees in LUNA or stablecoins for transactions such as fund transfers, smart contract execution, and staking. These fees are distributed among validators and delegators, providing additional incentives for network security and functionality.
- Dynamic Fee Model: Transaction fees are dynamically adjusted based on network congestion and transaction size. This ensures efficient resource allocation while keeping fees affordable for users.
- Seigniorage Fee: A portion of revenue from stablecoin minting is directed to the treasury and distributed to stakers, reinforcing network participation and development.
- Burning Mechanism: A portion of fees and seigniorage revenue may be burned, reducing LUNA supply over time and contributing to its deflationary tokenomics.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) binance_smart_chain, ethereum, solana, terra_classic is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for dYdX

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	dYdX	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	40.48641	kWh/a

Qualitative information

S.4 Consensus Mechanism

dYdX is present on the following networks: Ethereum, Solana.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

dYdX is present on the following networks: Ethereum, Solana.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.
- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.

2. Delegators:

- Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.

3. Economic Security:

- Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
- Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties. Fees Applicable on the Solana Blockchain

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.

2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.

3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.

4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum, solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Perpetual

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Perpetual	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	38.78471	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for LCX

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	LCX	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	38.28838	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Open Campus

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Open Campus	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	38.15278	kWh/a

Qualitative information

S.4 Consensus Mechanism

Open Campus is present on the following networks: Binance Smart Chain, Edu Chain, Ethereum.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

EDU Chain operates as a Layer 3 blockchain built on the Arbitrum Orbit stack, with Arbitrum serving as its settlement layer. As an Orbit-based rollup, EDU Chain relies on the underlying Arbitrum and Ethereum infrastructure for settlement and ultimately inherits security from Ethereum’s Proof-of-Stake consensus rather than operating an independent validator consensus mechanism.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Open Campus is present on the following networks: Binance Smart Chain, Edu Chain, Ethereum.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

EDU is the native gas token of Edu Chain and is used to pay transaction fees for executing operations on the network. The token is also used for governance within the Open Campus ecosystem and supports ecosystem participation and incentive mechanisms. As a Layer 3 network, transaction processing occurs on Edu Chain while settlement is handled through the underlying Arbitrum infrastructure.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

For the calculation of energy consumptions, the so called 'bottom-up' approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

To determine the energy consumption of a token, the energy consumption of the network(s) binance_smart_chain, ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



AI Rig Complex

ARC | K499MSW6G

Quantitative information

Quantitative sustainability indicators for AI Rig Complex

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	AI Rig Complex	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	37.61432	kWh/a

Qualitative information

S.4 Consensus Mechanism

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.

- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.
- 2. Delegators:
 - Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.
- 3. Economic Security:
 - Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
 - Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.
2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.
3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.
4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Badger

BADGER | 4GZZFJMVV

Quantitative information

Quantitative sustainability indicators for Badger

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Badger	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	36.94119	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.


Rarible

RARI | 2GFN66H47

Quantitative information

Quantitative sustainability indicators for Rarible

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Rarible	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	36.79938	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for OMGToken

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	OMGToken	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	36.44486	kWh/a

Qualitative information

S.4 Consensus Mechanism

OMGToken is present on the following networks: Ethereum, Polygon.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

Polygon PoS is an EVM-compatible sidechain that operates with a Proof-of-Stake consensus mechanism and periodically submits checkpoints to the Ethereum mainnet. The network maintains its own validator set and processes transactions independently from Ethereum, while using Ethereum smart contracts for staking-related functions and checkpoint verification. Polygon PoS therefore uses Ethereum as a staking and checkpointing layer, but does not rely on Ethereum for full

transaction execution or transaction data availability. The Polygon-side architecture consists of two primary node layers. The Bor layer is responsible for transaction execution and block production. The Heimdall layer is responsible for validator coordination, staking-related monitoring, consensus, and checkpoint finalisation. Heimdall is based on Cosmos SDK and CometBFT and aggregates blocks produced by Bor into periodic Merkle-root checkpoints that are submitted to smart contracts on the Ethereum mainnet. Validators participate in the network by staking POL tokens. Token holders may delegate POL tokens to validators, contributing to the validator's effective stake and participating indirectly in network validation. Following the Rio upgrade, Polygon PoS uses a Validator-Elected Block Producer model. Under this model, validators elect the block producer or block producers for a span, rather than relying on the previous stake-weighted selection model for multiple block producers over shorter intervals. Block production and transaction execution are performed on the Bor layer, while Heimdall validators coordinate consensus and checkpoint finalisation. At regular intervals, Heimdall validators aggregate blocks into a Merkle root and submit the resulting checkpoint to Ethereum smart contracts. These checkpoints provide an additional verification layer and support cross-chain verification, including in the context of asset transfers between Polygon PoS and Ethereum. This design enables higher transaction throughput and lower transaction costs than the Ethereum mainnet, while maintaining a technical connection to Ethereum through staking contracts and periodic checkpointing. Polygon PoS should therefore be understood as an independent sidechain or commit-chain architecture, rather than a rollup that inherits full execution and data availability security from Ethereum.

S.5 Incentive Mechanisms and Applicable Fees

OMGToken is present on the following networks: Ethereum, Polygon.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

Polygon PoS uses economic incentives to support validator participation, transaction processing, and network operation. Validators stake POL tokens and participate in block production, validation, voting, and checkpoint finalisation. Validators may receive rewards connected to their participation in the network, including rewards linked to validation activities and transaction-fee allocation, depending on the applicable protocol rules. Token holders who do not operate validator infrastructure may delegate POL tokens to validators. Delegators may receive a share of rewards attributable to the validator to whom they delegate, subject to the validator's commission and applicable protocol rules. Delegation increases the validator's effective stake and may affect its role in the validator set and related network processes. Following the Rio upgrade, Polygon PoS introduced a Validator-Elected Block Producer model, under which validators elect the block producer or block producers for a span. Publicly described protocol changes associated with this model also provide for redistribution of fees, including maximum extractable value-related fees where applicable, to non-producing validators under the relevant protocol design. This changes the incentive structure

from the previous model in which block production selection was more directly described by reference to stake-weighted producer selection. Polygon PoS includes protocol specifications for validator penalties, including slashing-related concepts. Transactions on Polygon PoS require payment of network fees in POL. Fees apply to ordinary token transfers, smart contract deployment, and smart contract interaction. The amount of fees may vary depending on network demand, transaction complexity, and computational resources required. Because Polygon PoS processes transactions independently from Ethereum, transaction fees are generally designed to be lower than equivalent activity on the Ethereum mainnet, although actual fees may change according to network conditions and protocol parameters.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum, polygon is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for GAIA

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	GAIA	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	35.87763	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



MANTLE STAKED ETH

METH | VSK737T5N

Quantitative information

Quantitative sustainability indicators for MANTLE STAKED ETH

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	MANTLE STAKED ETH	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	35.87763	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Zebec Network

ZBCN | DHV5NRJCF

Quantitative information

Quantitative sustainability indicators for Zebec Network

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Zebec Network	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	35.32273	kWh/a

Qualitative information

S.4 Consensus Mechanism

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.

- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.
- 2. Delegators:
 - Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.
- 3. Economic Security:
 - Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
 - Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.
2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.
3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.
4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Star Atlas Dao

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Star Atlas Dao	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	34.99581	kWh/a

Qualitative information

S.4 Consensus Mechanism

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):
 - Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
 - Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.
2. Proof of Stake (PoS):
 - Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
 - Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.

- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.
- 2. Delegators:
 - Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.
- 3. Economic Security:
 - Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
 - Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.
2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.
3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.
4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Samoyedcoin

SAMO | /

Quantitative information

Quantitative sustainability indicators for Samoyedcoin

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Samoyedcoin	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	34.23527	kWh/a

Qualitative information

S.4 Consensus Mechanism

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.

- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.
- 2. Delegators:
 - Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.
- 3. Economic Security:
 - Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
 - Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.
2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.
3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.
4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Goldfinch

GFI | CKL6S2F6B

Quantitative information

Quantitative sustainability indicators for Goldfinch

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Goldfinch	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	33.89230	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for GameBuild

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	GameBuild	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	33.73216	kWh/a

Qualitative information

S.4 Consensus Mechanism

GameBuild is present on the following networks: Binance Smart Chain, Ethereum.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon

Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

GameBuild is present on the following networks: Binance Smart Chain, Ethereum.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to

slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) binance_smart_chain, ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Keep Network

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Keep Network	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	33.60869	kWh/a

Qualitative information

S.4 Consensus Mechanism

Keep Network is present on the following networks: Ethereum, Solana.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Keep Network is present on the following networks: Ethereum, Solana.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.
- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.

2. Delegators:

- Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.

3. Economic Security:

- Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
- Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties. Fees Applicable on the Solana Blockchain

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.

2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.

3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.

4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum, solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.


Zora

ZORA | M4DCVM90D

Quantitative information

Quantitative sustainability indicators for Zora

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Zora	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	32.21258	kWh/a

Qualitative information

S.4 Consensus Mechanism

Base does not operate its own consensus mechanism or decentralised validator set comparable to a Layer-1 blockchain. As an optimistic rollup Layer-2 network, Base relies on Ethereum's Proof-of-Stake consensus for the finality and settlement of data and state commitments posted to Ethereum Layer 1. Transaction ordering on Base is performed by a sequencer, currently operated by Coinbase. This sequencing function provides transaction ordering and execution on the Layer-2 network but does not constitute a decentralised consensus mechanism. The validity of Layer-2 state transitions is supported by an optimistic fault-proof mechanism, under which incorrect state commitments may be challenged during the applicable dispute period. Accordingly, Base's security model depends on Ethereum Layer 1 for settlement and finality, while Layer-2 transaction ordering remains dependent on the sequencer.

S.5 Incentive Mechanisms and Applicable Fees

Base does not have a native protocol token and does not operate a staking, validator reward or token issuance mechanism. Transaction fees on Base are paid in ETH. The economic incentives within the network are primarily related to transaction processing and network security. Transactions are executed on Base and periodically submitted to Ethereum Layer 1 in batches. As the cost of a Layer-1 submission is shared among multiple Layer-2 transactions, the average transaction cost per transaction may be lower than executing the same transactions directly on Ethereum Layer 1. The integrity of withdrawals from Base is supported by a fault-proof mechanism. Withdrawals are subject to a dispute period during which participants may challenge incorrect state commitments. The

dispute process incorporates economic incentives intended to encourage honest behaviour and discourage invalid claims.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) base is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for BarnBridge

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	BarnBridge	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	32.19060	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Flux

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Flux	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	31.55867	kWh/a

Qualitative information

S.4 Consensus Mechanism

Flux is present on the following networks: Binance Smart Chain, Ethereum, Solana, Tron.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon

Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

The Tron blockchain operates on a Delegated Proof of Stake (DPoS) consensus mechanism, designed to improve scalability, transaction speed, and energy efficiency.

Core Components:

1. Delegated Proof of Stake (DPoS): Tron uses DPoS, where token holders vote for a group of delegates known as Super Representatives (SRs) who are responsible for validating transactions and producing new blocks on the network. Token holders can vote for SRs based on their stake in the Tron network, and the top 27 SRs (or more, depending on the protocol version) are selected to participate in the block production process. SRs take turns producing blocks, which are added to the blockchain. This is done on a rotational basis to ensure decentralization and prevent control by a small group of validators.
2. Block Production: The Super Representatives generate new blocks and confirm transactions. The Tron blockchain achieves block finality quickly, with block production occurring every 3 seconds, making it highly efficient and capable of processing thousands of transactions per second.
3. Voting and Governance: Tron's DPoS system also allows token holders to vote on important network decisions, such as protocol upgrades and changes to the system's parameters. Voting power is proportional to the amount of TRX (Tron's native token) that a user holds and chooses to stake. This provides a governance system where the community can actively participate in decision-making.
4. Super Representatives: The Super Representatives play a crucial role in maintaining the security and stability of the Tron blockchain. They are responsible for validating transactions, proposing new blocks, and ensuring the overall functionality of the network. Super Representatives are incentivized with block rewards (newly minted TRX tokens) and transaction fees for their work.

S.5 Incentive Mechanisms and Applicable Fees

Flux is present on the following networks: Binance Smart Chain, Ethereum, Solana, Tron.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on

the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- **Staking Rewards:** Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.
- **Transaction Fees:** Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.

2. Delegators:

- Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.

3. Economic Security:

- Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
- Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.

2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.

3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.

4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

The Tron blockchain uses a Delegated Proof of Stake (DPoS) consensus mechanism to secure its network and incentivize participation.

Incentive Mechanism:

1. Super Representatives (SRs) Rewards:

- Block Rewards: Super Representatives (SRs), who are elected by TRX holders, are rewarded for producing blocks. Each block they produce comes with a block reward in the form of TRX tokens.
- Transaction Fees: In addition to block rewards, SRs receive transaction fees for validating transactions and including them in blocks. This ensures they are incentivized to process transactions efficiently.

2. Voting and Delegation:

- TRX Staking: TRX holders can stake their tokens and vote for Super Representatives (SRs). When TRX holders vote, they delegate their voting power to SRs, which allows SRs to earn rewards in the form of newly minted TRX tokens.
- Delegator Rewards: Token holders who delegate their votes to an SR can also receive a share of the rewards. This means delegators share in the block rewards and transaction fees that the SR earns.
- Incentivizing Participation: The more tokens a user stakes, the more voting power they have, which encourages participation in governance and network security.

3. Incentive for SRs:

SRs are also incentivized to maintain the health and performance of the network. Their reputation and continued election depend on their ability to produce blocks consistently and efficiently process transactions.

Applicable Fees:

1. Transaction Fees:

- Fee Calculation: Users must pay transaction fees to have their transactions processed. The transaction fee varies based on the complexity of the transaction and the network's current demand. This is paid in TRX tokens. Transaction
- Fee Distribution: Transaction fees are distributed to Super Representatives (SRs), giving them an ongoing income to maintain and support the network.

2. Storage Fees:

Tron charges storage fees for data storage on the blockchain. This includes storing smart contracts, tokens, and other data on the network. Users are required to pay these fees in TRX tokens to store data.

3. Energy and Bandwidth:

Energy: Tron uses a resource model that allows users to access network resources like bandwidth and energy through staking. Users who stake their TRX tokens receive \energy

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) binance_smart_chain, ethereum, solana, tron is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Unicorn Fart Dust

UFD | /

Quantitative information

Quantitative sustainability indicators for Unicorn Fart Dust

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Unicorn Fart Dust	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	30.87495	kWh/a

Qualitative information

S.4 Consensus Mechanism

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.

- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.
- 2. Delegators:
 - Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.
- 3. Economic Security:
 - Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
 - Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.
2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.
3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.
4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Humanity Protocol

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Humanity Protocol	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	30.78223	kWh/a

Qualitative information

S.4 Consensus Mechanism

Humanity Protocol is present on the following networks: Binance Smart Chain, Ethereum.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon

Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Humanity Protocol is present on the following networks: Binance Smart Chain, Ethereum.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to

slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) binance_smart_chain, ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Hey Anon

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Hey Anon	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	29.61408	kWh/a

Qualitative information

S.4 Consensus Mechanism

Hey Anon is present on the following networks: Arbitrum, Base, Binance Smart Chain, Ethereum, Solana.

Arbitrum is an optimistic rollup that processes transactions on a Layer 2 network and relies on Ethereum for data availability and settlement. A sequencer orders incoming transactions, executes them and publishes compressed transaction batches to Ethereum. Arbitrum nodes can independently reconstruct and verify the resulting Layer 2 state using the transaction data published on the parent chain. Validators submit assertions representing the state of the network. Under the BoLD dispute protocol, conflicting or incorrect assertions may be challenged and resolved through an interactive fraud-proof process on Ethereum. Once an assertion has been confirmed and the applicable challenge process has been completed, the corresponding Layer 2 state is accepted for settlement purposes.

Base does not operate its own consensus mechanism or decentralised validator set comparable to a Layer-1 blockchain. As an optimistic rollup Layer-2 network, Base relies on Ethereum's Proof-of-Stake consensus for the finality and settlement of data and state commitments posted to Ethereum Layer 1. Transaction ordering on Base is performed by a sequencer, currently operated by Coinbase. This sequencing function provides transaction ordering and execution on the Layer-2 network but does not constitute a decentralised consensus mechanism. The validity of Layer-2 state transitions is supported by an optimistic fault-proof mechanism, under which incorrect state commitments may be challenged during the applicable dispute period. Accordingly, Base's security model depends on

Ethereum Layer 1 for settlement and finality, while Layer-2 transaction ordering remains dependent on the sequencer.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum’s consensus mechanism and Layer 2 functionality.

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Hey Anon is present on the following networks: Arbitrum, Base, Binance Smart Chain, Ethereum, Solana.

Transactions on Arbitrum are subject to fees paid in ETH. The total fee generally consists of a Layer 2 execution component, which covers the computational resources required to process the transaction, and a parent-chain data component, which reflects the cost of publishing compressed transaction data to Ethereum. The amount payable therefore depends on the computational complexity of the transaction, the volume and compressibility of its data and the prevailing cost of data publication on Ethereum. Participants that submit or challenge state assertions under the dispute protocol must provide economic bonds. These bonds are intended to discourage incorrect

assertions and compensate successful participants in the dispute process. Withdrawals through the canonical bridge become executable after the relevant Layer 2 state has been confirmed and the applicable challenge period has elapsed.

Base does not have a native protocol token and does not operate a staking, validator reward or token issuance mechanism. Transaction fees on Base are paid in ETH. The economic incentives within the network are primarily related to transaction processing and network security. Transactions are executed on Base and periodically submitted to Ethereum Layer 1 in batches. As the cost of a Layer-1 submission is shared among multiple Layer-2 transactions, the average transaction cost per transaction may be lower than executing the same transactions directly on Ethereum Layer 1. The integrity of withdrawals from Base is supported by a fault-proof mechanism. Withdrawals are subject to a dispute period during which participants may challenge incorrect state commitments. The dispute process incorporates economic incentives intended to encourage honest behaviour and discourage invalid claims.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in

certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.
- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.

2. Delegators:

- Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.

3. Economic Security:

- Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
- Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Fees Applicable on the Solana Blockchain

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.

2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.

3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.

4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) arbitrum, base, binance_smart_chain, ethereum, solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.


Arcium

ARX | 2GM37JOCX

Quantitative information

Quantitative sustainability indicators for Arcium

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Arcium	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	28.33255	kWh/a

Qualitative information

S.4 Consensus Mechanism

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.

- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.
- 2. Delegators:
 - Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.
- 3. Economic Security:
 - Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
 - Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.
2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.
3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.
4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for whitebit_coin

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	whitebit_coin	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	27.72362	kWh/a

Qualitative information

S.4 Consensus Mechanism

whitebit_coin is present on the following networks: Ethereum, Tron.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

The Tron blockchain operates on a Delegated Proof of Stake (DPoS) consensus mechanism, designed to improve scalability, transaction speed, and energy efficiency.

Core Components:

1. Delegated Proof of Stake (DPoS): Tron uses DPoS, where token holders vote for a group of delegates known as Super Representatives (SRs) who are responsible for validating transactions and producing new blocks on the network. Token holders can vote for SRs based on their stake in the Tron network, and the top 27 SRs (or more, depending on the protocol version) are selected to participate in the block production process. SRs take turns producing blocks, which are added to the blockchain. This is done on a rotational basis to ensure decentralization and prevent control by a small group of validators.
2. Block Production: The Super Representatives generate new blocks and confirm transactions. The Tron blockchain achieves block finality quickly, with block production occurring every 3 seconds, making it highly efficient and capable of processing thousands of transactions per second.
3. Voting and Governance: Tron's DPoS system also allows token holders to vote on important network decisions, such as protocol upgrades and changes to the system's parameters. Voting power is proportional to the amount of TRX (Tron's native token) that a user holds and chooses to stake. This provides a governance system where the community can actively participate in decision-making.
4. Super Representatives: The Super Representatives play a crucial role in maintaining the security and stability of the Tron blockchain. They are responsible for validating transactions, proposing new blocks, and ensuring the overall functionality of the network. Super Representatives are incentivized with block rewards (newly minted TRX tokens) and transaction fees for their work.

S.5 Incentive Mechanisms and Applicable Fees

whitebit_coin is present on the following networks: Ethereum, Tron.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

The Tron blockchain uses a Delegated Proof of Stake (DPoS) consensus mechanism to secure its network and incentivize participation.

Incentive Mechanism:

1. Super Representatives (SRs) Rewards:
 - Block Rewards: Super Representatives (SRs), who are elected by TRX holders, are rewarded for producing blocks. Each block they produce comes with a block reward in the form of TRX tokens.
 - Transaction Fees: In addition to block rewards, SRs receive transaction fees for validating transactions and including them in blocks. This ensures they are incentivized to process transactions efficiently.

2. Voting and Delegation:

- TRX Staking: TRX holders can stake their tokens and vote for Super Representatives (SRs). When TRX holders vote, they delegate their voting power to SRs, which allows SRs to earn rewards in the form of newly minted TRX tokens.
- Delegator Rewards: Token holders who delegate their votes to an SR can also receive a share of the rewards. This means delegators share in the block rewards and transaction fees that the SR earns.
- Incentivizing Participation: The more tokens a user stakes, the more voting power they have, which encourages participation in governance and network security.

3. Incentive for SRs:

SRs are also incentivized to maintain the health and performance of the network. Their reputation and continued election depend on their ability to produce blocks consistently and efficiently process transactions.

Applicable Fees:

1. Transaction Fees:

- Fee Calculation: Users must pay transaction fees to have their transactions processed. The transaction fee varies based on the complexity of the transaction and the network's current demand. This is paid in TRX tokens. Transaction
- Fee Distribution: Transaction fees are distributed to Super Representatives (SRs), giving them an ongoing income to maintain and support the network.

2. Storage Fees:

Tron charges storage fees for data storage on the blockchain. This includes storing smart contracts, tokens, and other data on the network. Users are required to pay these fees in TRX tokens to store data.

3. Energy and Bandwidth:

Energy: Tron uses a resource model that allows users to access network resources like bandwidth and energy through staking. Users who stake their TRX tokens receive \energy

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum, tron is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for PolkastarterToken

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	PolkastarterToken	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	27.51091	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.


Radicale

RAD | 315760HRD

Quantitative information

Quantitative sustainability indicators for Radicle

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Radicale	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	26.87277	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Limewire

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Limewire	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	26.61452	kWh/a

Qualitative information

S.4 Consensus Mechanism

Limewire is present on the following networks: Base, Binance Smart Chain, Ethereum.

Base does not operate its own consensus mechanism or decentralised validator set comparable to a Layer-1 blockchain. As an optimistic rollup Layer-2 network, Base relies on Ethereum's Proof-of-Stake consensus for the finality and settlement of data and state commitments posted to Ethereum Layer 1. Transaction ordering on Base is performed by a sequencer, currently operated by Coinbase. This sequencing function provides transaction ordering and execution on the Layer-2 network but does not constitute a decentralised consensus mechanism. The validity of Layer-2 state transitions is supported by an optimistic fault-proof mechanism, under which incorrect state commitments may be challenged during the applicable dispute period. Accordingly, Base's security model depends on Ethereum Layer 1 for settlement and finality, while Layer-2 transaction ordering remains dependent on the sequencer.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 "Cabinet" validators and 24 "Candidate" validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by

validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Limewire is present on the following networks: Base, Binance Smart Chain, Ethereum.

Base does not have a native protocol token and does not operate a staking, validator reward or token issuance mechanism. Transaction fees on Base are paid in ETH. The economic incentives within the network are primarily related to transaction processing and network security. Transactions are executed on Base and periodically submitted to Ethereum Layer 1 in batches. As the cost of a Layer-1 submission is shared among multiple Layer-2 transactions, the average transaction cost per transaction may be lower than executing the same transactions directly on Ethereum Layer 1. The integrity of withdrawals from Base is supported by a fault-proof mechanism. Withdrawals are subject to a dispute period during which participants may challenge incorrect state commitments. The dispute process incorporates economic incentives intended to encourage honest behaviour and discourage invalid claims.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The

staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) base, binance_smart_chain, ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for EURØP

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	EURØP	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	26.37644	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

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Quantitative information

Quantitative sustainability indicators for BitDAO

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	BitDAO	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	26.30553	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Cloud

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Cloud	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	25.65789	kWh/a

Qualitative information

S.4 Consensus Mechanism

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):
 - Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
 - Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.
2. Proof of Stake (PoS):
 - Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
 - Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.

- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.
- 2. Delegators:
 - Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.
- 3. Economic Security:
 - Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
 - Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.
2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.
3. Rent Fees:

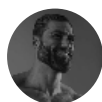
State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.
4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



GIGACHAD

GIGA | W1GC0WX1K

Quantitative information

Quantitative sustainability indicators for GIGACHAD

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	GIGACHAD	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	25.37839	kWh/a

Qualitative information

S.4 Consensus Mechanism

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.

- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.
- 2. Delegators:
 - Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.
- 3. Economic Security:
 - Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
 - Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.
2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.
3. Rent Fees:

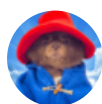
State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.
4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Bertram The Pomeranian

BERT | /

Quantitative information

Quantitative sustainability indicators for Bertram The Pomeranian

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Bertram The Pomeranian	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	24.53113	kWh/a

Qualitative information

S.4 Consensus Mechanism

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.

- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.
- 2. Delegators:
 - Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.
- 3. Economic Security:
 - Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
 - Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.
2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.
3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.
4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Vine Coin

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Vine Coin	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	23.22967	kWh/a

Qualitative information

S.4 Consensus Mechanism

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.

- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.
- 2. Delegators:
 - Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.
- 3. Economic Security:
 - Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
 - Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.
2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.
3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.
4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



ARPA Token

ARPA | XM59GZ001

Quantitative information

Quantitative sustainability indicators for ARPA Token

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	ARPA Token	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	23.13313	kWh/a

Qualitative information

S.4 Consensus Mechanism

ARPA Token is present on the following networks: Binance Smart Chain, Ethereum, Polygon.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 "Cabinet" validators and 24 "Candidate" validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon

Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

Polygon PoS is an EVM-compatible sidechain that operates with a Proof-of-Stake consensus mechanism and periodically submits checkpoints to the Ethereum mainnet. The network maintains its own validator set and processes transactions independently from Ethereum, while using Ethereum smart contracts for staking-related functions and checkpoint verification. Polygon PoS therefore uses Ethereum as a staking and checkpointing layer, but does not rely on Ethereum for full transaction execution or transaction data availability. The Polygon-side architecture consists of two primary node layers. The Bor layer is responsible for transaction execution and block production. The Heimdall layer is responsible for validator coordination, staking-related monitoring, consensus, and checkpoint finalisation. Heimdall is based on Cosmos SDK and CometBFT and aggregates blocks produced by Bor into periodic Merkle-root checkpoints that are submitted to smart contracts on the Ethereum mainnet. Validators participate in the network by staking POL tokens. Token holders may delegate POL tokens to validators, contributing to the validator's effective stake and participating indirectly in network validation. Following the Rio upgrade, Polygon PoS uses a Validator-Elected Block Producer model. Under this model, validators elect the block producer or block producers for a span, rather than relying on the previous stake-weighted selection model for multiple block producers over shorter intervals. Block production and transaction execution are performed on the Bor layer, while Heimdall validators coordinate consensus and checkpoint finalisation. At regular intervals, Heimdall validators aggregate blocks into a Merkle root and submit the resulting checkpoint to Ethereum smart contracts. These checkpoints provide an additional verification layer and support cross-chain verification, including in the context of asset transfers between Polygon PoS and Ethereum. This design enables higher transaction throughput and lower transaction costs than the Ethereum mainnet, while maintaining a technical connection to Ethereum through staking contracts and periodic checkpointing. Polygon PoS should therefore be understood as an independent sidechain or commit-chain architecture, rather than a rollup that inherits full execution and data availability security from Ethereum.

S.5 Incentive Mechanisms and Applicable Fees

ARPA Token is present on the following networks: Binance Smart Chain, Ethereum, Polygon.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are

updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

Polygon PoS uses economic incentives to support validator participation, transaction processing, and network operation. Validators stake POL tokens and participate in block production, validation, voting, and checkpoint finalisation. Validators may receive rewards connected to their participation in the network, including rewards linked to validation activities and transaction-fee allocation, depending on the applicable protocol rules. Token holders who do not operate validator infrastructure may delegate POL tokens to validators. Delegators may receive a share of rewards attributable to the validator to whom they delegate, subject to the validator's commission and applicable protocol rules. Delegation increases the validator's effective stake and may affect its role in the validator set and related network processes. Following the Rio upgrade, Polygon PoS introduced a Validator-Elected Block Producer model, under which validators elect the block producer or block producers for a span. Publicly described protocol changes associated with this model also provide for redistribution of fees, including maximum extractable value-related fees where applicable, to non-producing validators under the relevant protocol design. This changes the incentive structure from the previous model in which block production selection was more directly described by reference to stake-weighted producer selection. Polygon PoS includes protocol specifications for validator penalties, including slashing-related concepts. Transactions on Polygon PoS require payment of network fees in POL. Fees apply to ordinary token transfers, smart contract deployment, and smart contract interaction. The amount of fees may vary depending on network demand, transaction complexity, and computational resources required. Because Polygon PoS processes transactions independently from Ethereum, transaction fees are generally designed to be lower than equivalent activity on the Ethereum mainnet, although actual fees may change according to network conditions and protocol parameters.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) binance_smart_chain, ethereum, polygon is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Mind Network

FHE | /

Quantitative information

Quantitative sustainability indicators for Mind Network

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Mind Network	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	22.76052	kWh/a

Qualitative information

S.4 Consensus Mechanism

Mind Network is present on the following networks: Binance Smart Chain, Ethereum.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon

Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Mind Network is present on the following networks: Binance Smart Chain, Ethereum.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to

slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) binance_smart_chain, ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Tribe

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Tribe	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	22.54760	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Tokemak

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Tokemak	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	22.33489	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Clover

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Clover	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	21.98036	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for FLock.io

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	FLock.io	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	21.50350	kWh/a

Qualitative information

S.4 Consensus Mechanism

Base does not operate its own consensus mechanism or decentralised validator set comparable to a Layer-1 blockchain. As an optimistic rollup Layer-2 network, Base relies on Ethereum's Proof-of-Stake consensus for the finality and settlement of data and state commitments posted to Ethereum Layer 1. Transaction ordering on Base is performed by a sequencer, currently operated by Coinbase. This sequencing function provides transaction ordering and execution on the Layer-2 network but does not constitute a decentralised consensus mechanism. The validity of Layer-2 state transitions is supported by an optimistic fault-proof mechanism, under which incorrect state commitments may be challenged during the applicable dispute period. Accordingly, Base's security model depends on Ethereum Layer 1 for settlement and finality, while Layer-2 transaction ordering remains dependent on the sequencer.

S.5 Incentive Mechanisms and Applicable Fees

Base does not have a native protocol token and does not operate a staking, validator reward or token issuance mechanism. Transaction fees on Base are paid in ETH. The economic incentives within the network are primarily related to transaction processing and network security. Transactions are executed on Base and periodically submitted to Ethereum Layer 1 in batches. As the cost of a Layer-1 submission is shared among multiple Layer-2 transactions, the average transaction cost per transaction may be lower than executing the same transactions directly on Ethereum Layer 1. The integrity of withdrawals from Base is supported by a fault-proof mechanism. Withdrawals are subject to a dispute period during which participants may challenge incorrect state commitments. The

dispute process incorporates economic incentives intended to encourage honest behaviour and discourage invalid claims.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) base is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Chromia

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Chromia	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	21.20042	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Aavegotchi GHST Token

GHST | JCMPCVD08

Quantitative information

Quantitative sustainability indicators for Aavegotchi GHST Token

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Aavegotchi GHST Token	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	20.82986	kWh/a

Qualitative information

S.4 Consensus Mechanism

Aavegotchi GHST Token is present on the following networks: Base, Ethereum, Polygon.

Base does not operate its own consensus mechanism or decentralised validator set comparable to a Layer-1 blockchain. As an optimistic rollup Layer-2 network, Base relies on Ethereum's Proof-of-Stake consensus for the finality and settlement of data and state commitments posted to Ethereum Layer 1. Transaction ordering on Base is performed by a sequencer, currently operated by Coinbase. This sequencing function provides transaction ordering and execution on the Layer-2 network but does not constitute a decentralised consensus mechanism. The validity of Layer-2 state transitions is supported by an optimistic fault-proof mechanism, under which incorrect state commitments may be challenged during the applicable dispute period. Accordingly, Base's security model depends on Ethereum Layer 1 for settlement and finality, while Layer-2 transaction ordering remains dependent on the sequencer.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the

canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

Polygon PoS is an EVM-compatible sidechain that operates with a Proof-of-Stake consensus mechanism and periodically submits checkpoints to the Ethereum mainnet. The network maintains its own validator set and processes transactions independently from Ethereum, while using Ethereum smart contracts for staking-related functions and checkpoint verification. Polygon PoS therefore uses Ethereum as a staking and checkpointing layer, but does not rely on Ethereum for full transaction execution or transaction data availability. The Polygon-side architecture consists of two primary node layers. The Bor layer is responsible for transaction execution and block production. The Heimdall layer is responsible for validator coordination, staking-related monitoring, consensus, and checkpoint finalisation. Heimdall is based on Cosmos SDK and CometBFT and aggregates blocks produced by Bor into periodic Merkle-root checkpoints that are submitted to smart contracts on the Ethereum mainnet. Validators participate in the network by staking POL tokens. Token holders may delegate POL tokens to validators, contributing to the validator's effective stake and participating indirectly in network validation. Following the Rio upgrade, Polygon PoS uses a Validator-Elected Block Producer model. Under this model, validators elect the block producer or block producers for a span, rather than relying on the previous stake-weighted selection model for multiple block producers over shorter intervals. Block production and transaction execution are performed on the Bor layer, while Heimdall validators coordinate consensus and checkpoint finalisation. At regular intervals, Heimdall validators aggregate blocks into a Merkle root and submit the resulting checkpoint to Ethereum smart contracts. These checkpoints provide an additional verification layer and support cross-chain verification, including in the context of asset transfers between Polygon PoS and Ethereum. This design enables higher transaction throughput and lower transaction costs than the Ethereum mainnet, while maintaining a technical connection to Ethereum through staking contracts and periodic checkpointing. Polygon PoS should therefore be understood as an independent sidechain or commit-chain architecture, rather than a rollup that inherits full execution and data availability security from Ethereum.

S.5 Incentive Mechanisms and Applicable Fees

Aavegotchi GHST Token is present on the following networks: Base, Ethereum, Polygon.

Base does not have a native protocol token and does not operate a staking, validator reward or token issuance mechanism. Transaction fees on Base are paid in ETH. The economic incentives within the network are primarily related to transaction processing and network security. Transactions are executed on Base and periodically submitted to Ethereum Layer 1 in batches. As the cost of a Layer-1 submission is shared among multiple Layer-2 transactions, the average transaction cost per transaction may be lower than executing the same transactions directly on Ethereum Layer 1. The integrity of withdrawals from Base is supported by a fault-proof mechanism. Withdrawals are subject to a dispute period during which participants may challenge incorrect state commitments. The dispute process incorporates economic incentives intended to encourage honest behaviour and discourage invalid claims.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

Polygon PoS uses economic incentives to support validator participation, transaction processing, and network operation. Validators stake POL tokens and participate in block production, validation, voting, and checkpoint finalisation. Validators may receive rewards connected to their participation in the network, including rewards linked to validation activities and transaction-fee allocation, depending on the applicable protocol rules. Token holders who do not operate validator infrastructure may delegate POL tokens to validators. Delegators may receive a share of rewards attributable to the validator to whom they delegate, subject to the validator's commission and applicable protocol rules. Delegation increases the validator's effective stake and may affect its role in the validator set and related network processes. Following the Rio upgrade, Polygon PoS introduced a Validator-Elected Block Producer model, under which validators elect the block producer or block producers for a span. Publicly described protocol changes associated with this model also provide for redistribution of fees, including maximum extractable value-related fees where applicable, to non-producing validators under the relevant protocol design. This changes the incentive structure from the previous model in which block production selection was more directly described by reference to stake-weighted producer selection. Polygon PoS includes protocol specifications for validator penalties, including slashing-related concepts. Transactions on Polygon PoS require payment of network fees in POL. Fees apply to ordinary token transfers, smart contract deployment, and smart contract interaction. The amount of fees may vary depending on network demand, transaction complexity, and computational resources required. Because Polygon PoS processes transactions independently from Ethereum, transaction fees are generally designed to be lower than equivalent activity on the Ethereum mainnet, although actual fees may change according to network conditions and protocol parameters.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) base, ethereum, polygon is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Avalon Labs

AVE | TMW71HLQL

Quantitative information

Quantitative sustainability indicators for Avalon Labs

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Avalon Labs	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	20.48005	kWh/a

Qualitative information

S.4 Consensus Mechanism

Avalon Labs is present on the following networks: Binance Smart Chain, Ethereum.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 "Cabinet" validators and 24 "Candidate" validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon

Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Avalon Labs is present on the following networks: Binance Smart Chain, Ethereum.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to

slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) binance_smart_chain, ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Kin

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Kin	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	20.13014	kWh/a

Qualitative information

S.4 Consensus Mechanism

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):
 - Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
 - Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.
2. Proof of Stake (PoS):
 - Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
 - Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.

- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.
- 2. Delegators:
 - Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.
- 3. Economic Security:
 - Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
 - Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.
2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.
3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.
4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Alien Worlds Trilium

TLM | SGCHCLHT4

Quantitative information

Quantitative sustainability indicators for Alien Worlds Trilium

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Alien Worlds Trilium	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	19.67937	kWh/a

Qualitative information

S.4 Consensus Mechanism

Alien Worlds Trilium is present on the following networks: Binance Smart Chain, Ethereum.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon

Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Alien Worlds Trilium is present on the following networks: Binance Smart Chain, Ethereum.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to

slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) binance_smart_chain, ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Bubblemaps

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Bubblemaps	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	19.49563	kWh/a

Qualitative information

S.4 Consensus Mechanism

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):
 - Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
 - Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.
2. Proof of Stake (PoS):
 - Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
 - Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.

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- 3. Economic Security:
 - Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
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Transaction Fees:

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Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

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Quantitative information

Quantitative sustainability indicators for Quack AI

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Quack AI	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	19.37197	kWh/a

Qualitative information

S.4 Consensus Mechanism

Quack AI is present on the following networks: Binance Smart Chain, Ethereum.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

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Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Quack AI is present on the following networks: Binance Smart Chain, Ethereum.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to

slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) binance_smart_chain, ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Peanut the Squirrel

PNUT | 75D0KJ7WN

Quantitative information

Quantitative sustainability indicators for Peanut the Squirrel

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Peanut the Squirrel	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	19.22049	kWh/a

Qualitative information

S.4 Consensus Mechanism

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.

- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.
- 2. Delegators:
 - Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.
- 3. Economic Security:
 - Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
 - Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.
2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.
3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.
4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for ZEROBASE

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	ZEROBASE	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	19.04108	kWh/a

Qualitative information

S.4 Consensus Mechanism

ZEROBASE is present on the following networks: Base, Binance Smart Chain, Ethereum.

Base does not operate its own consensus mechanism or decentralised validator set comparable to a Layer-1 blockchain. As an optimistic rollup Layer-2 network, Base relies on Ethereum's Proof-of-Stake consensus for the finality and settlement of data and state commitments posted to Ethereum Layer 1. Transaction ordering on Base is performed by a sequencer, currently operated by Coinbase. This sequencing function provides transaction ordering and execution on the Layer-2 network but does not constitute a decentralised consensus mechanism. The validity of Layer-2 state transitions is supported by an optimistic fault-proof mechanism, under which incorrect state commitments may be challenged during the applicable dispute period. Accordingly, Base's security model depends on Ethereum Layer 1 for settlement and finality, while Layer-2 transaction ordering remains dependent on the sequencer.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 "Cabinet" validators and 24 "Candidate" validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by

validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

ZEROBASE is present on the following networks: Base, Binance Smart Chain, Ethereum.

Base does not have a native protocol token and does not operate a staking, validator reward or token issuance mechanism. Transaction fees on Base are paid in ETH. The economic incentives within the network are primarily related to transaction processing and network security. Transactions are executed on Base and periodically submitted to Ethereum Layer 1 in batches. As the cost of a Layer-1 submission is shared among multiple Layer-2 transactions, the average transaction cost per transaction may be lower than executing the same transactions directly on Ethereum Layer 1. The integrity of withdrawals from Base is supported by a fault-proof mechanism. Withdrawals are subject to a dispute period during which participants may challenge incorrect state commitments. The dispute process incorporates economic incentives intended to encourage honest behaviour and discourage invalid claims.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The

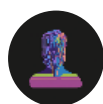
staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) base, binance_smart_chain, ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.


Zerebro

ZEREBRO | /

Quantitative information

Quantitative sustainability indicators for Zerebro

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Zerebro	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	18.84490	kWh/a

Qualitative information

S.4 Consensus Mechanism

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.

- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.
- 2. Delegators:
 - Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.
- 3. Economic Security:
 - Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
 - Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.
2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.
3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.
4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Liquid Staked Ethereum

LSETH | /

Quantitative information

Quantitative sustainability indicators for Liquid Staked Ethereum

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Liquid Staked Ethereum	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	18.79581	kWh/a

Qualitative information

S.4 Consensus Mechanism

Liquid Staked Ethereum is present on the following networks: Base, Ethereum.

Base does not operate its own consensus mechanism or decentralised validator set comparable to a Layer-1 blockchain. As an optimistic rollup Layer-2 network, Base relies on Ethereum's Proof-of-Stake consensus for the finality and settlement of data and state commitments posted to Ethereum Layer 1. Transaction ordering on Base is performed by a sequencer, currently operated by Coinbase. This sequencing function provides transaction ordering and execution on the Layer-2 network but does not constitute a decentralised consensus mechanism. The validity of Layer-2 state transitions is supported by an optimistic fault-proof mechanism, under which incorrect state commitments may be challenged during the applicable dispute period. Accordingly, Base's security model depends on Ethereum Layer 1 for settlement and finality, while Layer-2 transaction ordering remains dependent on the sequencer.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the

canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Liquid Staked ETHereum is present on the following networks: Base, Ethereum.

Base does not have a native protocol token and does not operate a staking, validator reward or token issuance mechanism. Transaction fees on Base are paid in ETH. The economic incentives within the network are primarily related to transaction processing and network security. Transactions are executed on Base and periodically submitted to Ethereum Layer 1 in batches. As the cost of a Layer-1 submission is shared among multiple Layer-2 transactions, the average transaction cost per transaction may be lower than executing the same transactions directly on Ethereum Layer 1. The integrity of withdrawals from Base is supported by a fault-proof mechanism. Withdrawals are subject to a dispute period during which participants may challenge incorrect state commitments. The dispute process incorporates economic incentives intended to encourage honest behaviour and discourage invalid claims.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) base, ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Rubic

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Rubic	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	18.60570	kWh/a

Qualitative information

S.4 Consensus Mechanism

Rubic is present on the following networks: Arbitrum, Ethereum.

Arbitrum is an optimistic rollup that processes transactions on a Layer 2 network and relies on Ethereum for data availability and settlement. A sequencer orders incoming transactions, executes them and publishes compressed transaction batches to Ethereum. Arbitrum nodes can independently reconstruct and verify the resulting Layer 2 state using the transaction data published on the parent chain. Validators submit assertions representing the state of the network. Under the BoLD dispute protocol, conflicting or incorrect assertions may be challenged and resolved through an interactive fraud-proof process on Ethereum. Once an assertion has been confirmed and the applicable challenge process has been completed, the corresponding Layer 2 state is accepted for settlement purposes.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in

certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Rubic is present on the following networks: Arbitrum, Ethereum.

Transactions on Arbitrum are subject to fees paid in ETH. The total fee generally consists of a Layer 2 execution component, which covers the computational resources required to process the transaction, and a parent-chain data component, which reflects the cost of publishing compressed transaction data to Ethereum. The amount payable therefore depends on the computational complexity of the transaction, the volume and compressibility of its data and the prevailing cost of data publication on Ethereum. Participants that submit or challenge state assertions under the dispute protocol must provide economic bonds. These bonds are intended to discourage incorrect assertions and compensate successful participants in the dispute process. Withdrawals through the canonical bridge become executable after the relevant Layer 2 state has been confirmed and the applicable challenge period has elapsed.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) arbitrum, ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for XL1

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	XL1	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	18.57695	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Aura

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Aura	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	17.30013	kWh/a

Qualitative information

S.4 Consensus Mechanism

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):
 - Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
 - Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.
2. Proof of Stake (PoS):
 - Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
 - Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.

- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.
- 2. Delegators:
 - Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.
- 3. Economic Security:
 - Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
 - Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.
2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.
3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.
4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



MultiBank Group

MBG | 2HNNQLG24

Quantitative information

Quantitative sustainability indicators for MultiBank Group

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	MultiBank Group	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	16.66253	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Simons Cat

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Simons Cat	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	16.43323	kWh/a

Qualitative information

S.4 Consensus Mechanism

Simons Cat is present on the following networks: Binance Smart Chain, Solana.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Simons Cat is present on the following networks: Binance Smart Chain, Solana.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.
- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.

2. Delegators:

- Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.

3. Economic Security:

- Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
- Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Fees Applicable on the Solana Blockchain

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.

2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.

3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.

4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) binance_smart_chain, solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Sign

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Sign	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	16.34384	kWh/a

Qualitative information

S.4 Consensus Mechanism

Sign is present on the following networks: Base, Binance Smart Chain, Ethereum.

Base does not operate its own consensus mechanism or decentralised validator set comparable to a Layer-1 blockchain. As an optimistic rollup Layer-2 network, Base relies on Ethereum's Proof-of-Stake consensus for the finality and settlement of data and state commitments posted to Ethereum Layer 1. Transaction ordering on Base is performed by a sequencer, currently operated by Coinbase. This sequencing function provides transaction ordering and execution on the Layer-2 network but does not constitute a decentralised consensus mechanism. The validity of Layer-2 state transitions is supported by an optimistic fault-proof mechanism, under which incorrect state commitments may be challenged during the applicable dispute period. Accordingly, Base's security model depends on Ethereum Layer 1 for settlement and finality, while Layer-2 transaction ordering remains dependent on the sequencer.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 "Cabinet" validators and 24 "Candidate" validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by

validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Sign is present on the following networks: Base, Binance Smart Chain, Ethereum.

Base does not have a native protocol token and does not operate a staking, validator reward or token issuance mechanism. Transaction fees on Base are paid in ETH. The economic incentives within the network are primarily related to transaction processing and network security. Transactions are executed on Base and periodically submitted to Ethereum Layer 1 in batches. As the cost of a Layer-1 submission is shared among multiple Layer-2 transactions, the average transaction cost per transaction may be lower than executing the same transactions directly on Ethereum Layer 1. The integrity of withdrawals from Base is supported by a fault-proof mechanism. Withdrawals are subject to a dispute period during which participants may challenge incorrect state commitments. The dispute process incorporates economic incentives intended to encourage honest behaviour and discourage invalid claims.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The

staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) base, binance_smart_chain, ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for My Shell

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	My Shell	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	16.28311	kWh/a

Qualitative information

S.4 Consensus Mechanism

My Shell is present on the following networks: Binance Smart Chain, Ethereum.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon

Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

My Shell is present on the following networks: Binance Smart Chain, Ethereum.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to

slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) binance_smart_chain, ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for deBridge

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	deBridge	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	15.94938	kWh/a

Qualitative information

S.4 Consensus Mechanism

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):
 - Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
 - Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.
2. Proof of Stake (PoS):
 - Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
 - Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.

- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.
- 2. Delegators:
 - Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.
- 3. Economic Security:
 - Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
 - Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.
2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.
3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.
4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Moo Deng

MOODENG | H3X85BK7M

Quantitative information

Quantitative sustainability indicators for Moo Deng

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Moo Deng	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	15.80090	kWh/a

Qualitative information

S.4 Consensus Mechanism

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.

- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.
- 2. Delegators:
 - Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.
- 3. Economic Security:
 - Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
 - Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.
2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.
3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.
4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for BONDEX

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	BONDEX	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	15.58278	kWh/a

Qualitative information

S.4 Consensus Mechanism

BONDEX is present on the following networks: Binance Smart Chain, Ethereum.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon

Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

BONDEX is present on the following networks: Binance Smart Chain, Ethereum.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to

slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) binance_smart_chain, ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Saros

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Saros	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	14.61549	kWh/a

Qualitative information

S.4 Consensus Mechanism

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):
 - Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
 - Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.
2. Proof of Stake (PoS):
 - Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
 - Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.

- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.
- 2. Delegators:
 - Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.
- 3. Economic Security:
 - Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
 - Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.
2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.
3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.
4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for PlaysOut

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	PlaysOut	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	13.24093	kWh/a

Qualitative information

S.4 Consensus Mechanism

PlaysOut is present on the following networks: Base, Binance Smart Chain.

Base does not operate its own consensus mechanism or decentralised validator set comparable to a Layer-1 blockchain. As an optimistic rollup Layer-2 network, Base relies on Ethereum's Proof-of-Stake consensus for the finality and settlement of data and state commitments posted to Ethereum Layer 1. Transaction ordering on Base is performed by a sequencer, currently operated by Coinbase. This sequencing function provides transaction ordering and execution on the Layer-2 network but does not constitute a decentralised consensus mechanism. The validity of Layer-2 state transitions is supported by an optimistic fault-proof mechanism, under which incorrect state commitments may be challenged during the applicable dispute period. Accordingly, Base's security model depends on Ethereum Layer 1 for settlement and finality, while Layer-2 transaction ordering remains dependent on the sequencer.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 "Cabinet" validators and 24 "Candidate" validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by

validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

S.5 Incentive Mechanisms and Applicable Fees

PlaysOut is present on the following networks: Base, Binance Smart Chain.

Base does not have a native protocol token and does not operate a staking, validator reward or token issuance mechanism. Transaction fees on Base are paid in ETH. The economic incentives within the network are primarily related to transaction processing and network security. Transactions are executed on Base and periodically submitted to Ethereum Layer 1 in batches. As the cost of a Layer-1 submission is shared among multiple Layer-2 transactions, the average transaction cost per transaction may be lower than executing the same transactions directly on Ethereum Layer 1. The integrity of withdrawals from Base is supported by a fault-proof mechanism. Withdrawals are subject to a dispute period during which participants may challenge incorrect state commitments. The dispute process incorporates economic incentives intended to encourage honest behaviour and discourage invalid claims.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) base, binance_smart_chain is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Keep3rV1

KP3R | KDFPP8K07

Quantitative information

Quantitative sustainability indicators for Keep3rV1

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Keep3rV1	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	13.18822	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Jupiter

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Jupiter	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	13.15594	kWh/a

Qualitative information

S.4 Consensus Mechanism

Jupiter is present on the following networks: Binance Smart Chain, Ethereum.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon

Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Jupiter is present on the following networks: Binance Smart Chain, Ethereum.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to

slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) binance_smart_chain, ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for TrueFi

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	TrueFi	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	12.47917	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Chill House

CHILLHOUSE | /

Quantitative information

Quantitative sustainability indicators for Chill House

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Chill House	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	12.44244	kWh/a

Qualitative information

S.4 Consensus Mechanism

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.

- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.
- 2. Delegators:
 - Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.
- 3. Economic Security:
 - Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
 - Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.
2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.
3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.
4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Eclipse

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Eclipse	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	12.42200	kWh/a

Qualitative information

S.4 Consensus Mechanism

Eclipse is present on the following networks: Ethereum, Solana.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Eclipse is present on the following networks: Ethereum, Solana.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.
- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.

2. Delegators:

- Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.

3. Economic Security:

- Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
- Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties. Fees Applicable on the Solana Blockchain

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.

2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.

3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.

4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum, solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Banana For Scale

BANANAS31 | /

Quantitative information

Quantitative sustainability indicators for Banana For Scale

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Banana For Scale	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	12.31622	kWh/a

Qualitative information

S.4 Consensus Mechanism

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

S.5 Incentive Mechanisms and Applicable Fees

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that

proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) `binance_smart_chain` is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Soso Value

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Soso Value	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	11.55701	kWh/a

Qualitative information

S.4 Consensus Mechanism

Soso Value is present on the following networks: Base, Ethereum.

Base does not operate its own consensus mechanism or decentralised validator set comparable to a Layer-1 blockchain. As an optimistic rollup Layer-2 network, Base relies on Ethereum's Proof-of-Stake consensus for the finality and settlement of data and state commitments posted to Ethereum Layer 1. Transaction ordering on Base is performed by a sequencer, currently operated by Coinbase. This sequencing function provides transaction ordering and execution on the Layer-2 network but does not constitute a decentralised consensus mechanism. The validity of Layer-2 state transitions is supported by an optimistic fault-proof mechanism, under which incorrect state commitments may be challenged during the applicable dispute period. Accordingly, Base's security model depends on Ethereum Layer 1 for settlement and finality, while Layer-2 transaction ordering remains dependent on the sequencer.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the

canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Soso Value is present on the following networks: Base, Ethereum.

Base does not have a native protocol token and does not operate a staking, validator reward or token issuance mechanism. Transaction fees on Base are paid in ETH. The economic incentives within the network are primarily related to transaction processing and network security. Transactions are executed on Base and periodically submitted to Ethereum Layer 1 in batches. As the cost of a Layer-1 submission is shared among multiple Layer-2 transactions, the average transaction cost per transaction may be lower than executing the same transactions directly on Ethereum Layer 1. The integrity of withdrawals from Base is supported by a fault-proof mechanism. Withdrawals are subject to a dispute period during which participants may challenge incorrect state commitments. The dispute process incorporates economic incentives intended to encourage honest behaviour and discourage invalid claims.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) base, ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Act I The AI Prophecy

ACT | H4JMWVR6

Quantitative information

Quantitative sustainability indicators for Act I The AI Prophecy

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Act I The AI Prophecy	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	11.33315	kWh/a

Qualitative information

S.4 Consensus Mechanism

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.

- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.
- 2. Delegators:
 - Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.
- 3. Economic Security:
 - Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
 - Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.
2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.
3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.
4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Yooldo

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Yooldo	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	11.29106	kWh/a

Qualitative information

S.4 Consensus Mechanism

Yooldo is present on the following networks: Binance Smart Chain, Linea.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

The Linea Network uses a Zero-Knowledge Rollup (ZK-Rollup) architecture with a zkEVM for Ethereum compatibility, and its consensus is derived from Ethereum's own proof-of-stake security. While the Network has components like a sequencer for ordering transactions and a coordinator for network management, its consensus mechanism is fundamentally linked to the proof and verification

process of zero-knowledge proofs and the security of the Ethereum mainnet. Instead of a typical decentralized consensus on a separate blockchain, the Network inherits its security and state finality from Ethereum.

S.5 Incentive Mechanisms and Applicable Fees

Yooldo is present on the following networks: Binance Smart Chain, Linea.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Like Ethereum, the Network uses a gas system, where gas is the unit of computational effort required to process a transaction. All gas fees on the Network are paid in Ether (ETH). The Network has a base fee that is designed to stabilize at 7 wei. The base fee still decreases or increases based on network traffic, similar to Ethereum, but it does not go below 7 wei. The Network does not require token staking for transaction validation purposes and thus provides no staking rewards. It does not offer incentives for running a full network node. It does charge fees collected by the sequencer for transaction processing. Those fees are paid in ETH, 20% of which are immediately burned while the remaining 80% are converted to Tokens and then burned.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) binance_smart_chain, linea is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the

activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Multichain

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Multichain	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	11.25435	kWh/a

Qualitative information

S.4 Consensus Mechanism

Multichain is present on the following networks: Arbitrum, Binance Smart Chain, Ethereum, Fantom, Moonriver, Polygon.

Arbitrum is an optimistic rollup that processes transactions on a Layer 2 network and relies on Ethereum for data availability and settlement. A sequencer orders incoming transactions, executes them and publishes compressed transaction batches to Ethereum. Arbitrum nodes can independently reconstruct and verify the resulting Layer 2 state using the transaction data published on the parent chain. Validators submit assertions representing the state of the network. Under the BoLD dispute protocol, conflicting or incorrect assertions may be challenged and resolved through an interactive fraud-proof process on Ethereum. Once an assertion has been confirmed and the applicable challenge process has been completed, the corresponding Layer 2 state is accepted for settlement purposes.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 "Cabinet" validators and 24 "Candidate" validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by

validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

Fantom operates on the Lachesis Protocol, an Asynchronous Byzantine Fault Tolerant (aBFT) consensus mechanism designed for fast, secure, and scalable transactions.

Core Components of Fantom's Consensus:

1. Lachesis Protocol (aBFT):

- Asynchronous and Leaderless: Lachesis allows nodes to reach consensus independently without relying on a central leader, enhancing decentralization and speed.
- DAG Structure: Instead of a linear blockchain, Lachesis uses a Directed Acyclic Graph (DAG) structure, allowing multiple transactions to be processed in parallel across nodes. This structure supports high throughput, making the network suitable for applications requiring rapid transaction processing.

2. Event Blocks and Instant Finality:

- Event Blocks: Transactions are grouped into event blocks, which are validated asynchronously by multiple validators. When enough validators confirm an event block, it becomes part of the Fantom network's history.
- Instant Finality: Transactions on Fantom achieve immediate finality, meaning they are confirmed and cannot be reversed. This property is ideal for applications requiring fast and irreversible transactions.

Moonriver operates on a Proof of Stake (PoS) consensus mechanism, enhanced by Polkadot's Nominated Proof of Stake (NPoS) model. This structure ensures secure, scalable, and decentralized transaction processing, leveraging the robust Substrate framework.

Core Components:

- Nominated Proof of Stake (NPoS):

Validators are selected through staking by token holders, known as nominators, who delegate their MOVR tokens to trusted validator nodes. Validators with higher stakes and nominations are chosen to validate blocks and secure the network.

- Collator Nodes:

Moonriver employs collator nodes, responsible for aggregating transactions into blocks and submitting them to the Polkadot Relay Chain for final validation. Collators ensure fast block production while relying on Polkadot's shared security.

- Byzantine Fault Tolerance (BFT):

Moonriver integrates BFT properties to handle network disruptions and maintain consensus even if some validators act maliciously or become unavailable.

- Seamless Interoperability:

As a parachain within the Polkadot ecosystem, Moonriver benefits from Polkadot's cross-chain messaging protocols, enabling secure and efficient interoperability with other parachains and external blockchains.

Polygon PoS is an EVM-compatible sidechain that operates with a Proof-of-Stake consensus mechanism and periodically submits checkpoints to the Ethereum mainnet. The network maintains its own validator set and processes transactions independently from Ethereum, while using Ethereum smart contracts for staking-related functions and checkpoint verification. Polygon PoS therefore uses Ethereum as a staking and checkpointing layer, but does not rely on Ethereum for full transaction execution or transaction data availability. The Polygon-side architecture consists of two primary node layers. The Bor layer is responsible for transaction execution and block production. The Heimdall layer is responsible for validator coordination, staking-related monitoring, consensus, and checkpoint finalisation. Heimdall is based on Cosmos SDK and CometBFT and aggregates blocks produced by Bor into periodic Merkle-root checkpoints that are submitted to smart contracts on the Ethereum mainnet. Validators participate in the network by staking POL tokens. Token holders may delegate POL tokens to validators, contributing to the validator's effective stake and participating indirectly in network validation. Following the Rio upgrade, Polygon PoS uses a Validator-Elected Block Producer model. Under this model, validators elect the block producer or block producers for a span, rather than relying on the previous stake-weighted selection model for multiple block producers over shorter intervals. Block production and transaction execution are performed on the Bor layer, while Heimdall validators coordinate consensus and checkpoint finalisation. At regular intervals, Heimdall validators aggregate blocks into a Merkle root and submit the resulting checkpoint to Ethereum smart contracts. These checkpoints provide an additional verification layer and support cross-chain verification, including in the context of asset transfers between Polygon PoS and Ethereum. This design enables higher transaction throughput and lower transaction costs than the Ethereum mainnet, while maintaining a technical connection to Ethereum through staking contracts and periodic checkpointing. Polygon PoS should therefore be understood as an independent sidechain or commit-chain architecture, rather than a rollup that inherits full execution and data availability security from Ethereum.

S.5 Incentive Mechanisms and Applicable Fees

Multichain is present on the following networks: Arbitrum, Binance Smart Chain, Ethereum, Fantom, Moonriver, Polygon.

Transactions on Arbitrum are subject to fees paid in ETH. The total fee generally consists of a Layer 2 execution component, which covers the computational resources required to process the transaction, and a parent-chain data component, which reflects the cost of publishing compressed transaction data to Ethereum. The amount payable therefore depends on the computational complexity of the transaction, the volume and compressibility of its data and the prevailing cost of data publication on Ethereum. Participants that submit or challenge state assertions under the dispute protocol must provide economic bonds. These bonds are intended to discourage incorrect assertions and compensate successful participants in the dispute process. Withdrawals through the

canonical bridge become executable after the relevant Layer 2 state has been confirmed and the applicable challenge period has elapsed.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

Fantom's incentive model promotes network security through staking rewards, transaction fees, and delegation options, encouraging broad participation.

Incentive Mechanisms:

1. Staking Rewards for Validators:

- Earning Rewards in FTM: Validators who participate in the consensus process earn rewards in FTM tokens, proportional to the amount they have staked. This incentivizes validators to actively secure the network.
- Dynamic Staking Rate: Fantom's staking reward rate is dynamic, adjusting based on total FTM staked across the network. As more FTM is staked, individual rewards may decrease, maintaining a balanced reward structure that supports long-term network security.

2. Delegation for Token Holders:

Delegated Staking: Users who do not operate validator nodes can delegate their FTM tokens to validators. In return, they share in the staking rewards, encouraging wider participation in securing the network.

Applicable Fees:

- Transaction Fees in FTM: Users pay transaction fees in FTM tokens. The network's high throughput and DAG structure keep fees low, making Fantom ideal for decentralized applications (dApps) requiring frequent transactions.
- Efficient Fee Model: The low fees and scalability of the network make it cost-effective for users, fostering a favorable environment for high-volume applications.

Moonriver's incentive model ensures active participation from validators, nominators, and developers while maintaining network security and usability.

Incentive Mechanisms:

- Staking Rewards: Validators and nominators earn MOVR tokens for securing the network and validating transactions.
- Collator Rewards: Collators, who propose blocks, are rewarded with MOVR tokens.
- Inflationary Rewards: New MOVR tokens are minted to fund staking and ecosystem development.
- Developer Incentives: A portion of rewards supports dApp development and ecosystem growth.

Applicable Fees:

- Transaction Fees: Paid in MOVR for transfers and smart contract interactions, distributed to validators and collators.
- Gas Fees: Calculated based on transaction complexity, ensuring predictable costs.
- Fee Burning: A portion of fees is burned, reducing token supply over time to support value retention.

Polygon PoS uses economic incentives to support validator participation, transaction processing, and network operation. Validators stake POL tokens and participate in block production, validation, voting, and checkpoint finalisation. Validators may receive rewards connected to their participation in the network, including rewards linked to validation activities and transaction-fee allocation, depending on the applicable protocol rules. Token holders who do not operate validator infrastructure may delegate POL tokens to validators. Delegators may receive a share of rewards attributable to the validator to whom they delegate, subject to the validator's commission and applicable protocol rules. Delegation increases the validator's effective stake and may affect its role in the validator set and related network processes. Following the Rio upgrade, Polygon PoS introduced a Validator-Elected Block Producer model, under which validators elect the block producer or block producers for a span. Publicly described protocol changes associated with this model also provide for redistribution of fees, including maximum extractable value-related fees where applicable, to

non-producing validators under the relevant protocol design. This changes the incentive structure from the previous model in which block production selection was more directly described by reference to stake-weighted producer selection. Polygon PoS includes protocol specifications for validator penalties, including slashing-related concepts. Transactions on Polygon PoS require payment of network fees in POL. Fees apply to ordinary token transfers, smart contract deployment, and smart contract interaction. The amount of fees may vary depending on network demand, transaction complexity, and computational resources required. Because Polygon PoS processes transactions independently from Ethereum, transaction fees are generally designed to be lower than equivalent activity on the Ethereum mainnet, although actual fees may change according to network conditions and protocol parameters.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) arbitrum, binance_smart_chain, ethereum, fantom, moonriver, polygon is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Bonfida

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Bonfida	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	10.63438	kWh/a

Qualitative information

S.4 Consensus Mechanism

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):
 - Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
 - Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.
2. Proof of Stake (PoS):
 - Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
 - Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.

- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.
- 2. Delegators:
 - Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.
- 3. Economic Security:
 - Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
 - Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.
2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.
3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.
4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Goatseus Maximus

GOAT | 7FS1WX5VK

Quantitative information

Quantitative sustainability indicators for Goatseus Maximus

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Goatseus Maximus	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	10.57760	kWh/a

Qualitative information

S.4 Consensus Mechanism

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.

- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.
- 2. Delegators:
 - Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.
- 3. Economic Security:
 - Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
 - Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.
2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.
3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.
4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Zircuit

ZRC | PRF8RNVR4

Quantitative information

Quantitative sustainability indicators for Zircuit

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Zircuit	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	10.49385	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Melania Meme

MELANIA | TC417FPLR

Quantitative information

Quantitative sustainability indicators for Melania Meme

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Melania Meme	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	10.31681	kWh/a

Qualitative information

S.4 Consensus Mechanism

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):
 - Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
 - Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.
2. Proof of Stake (PoS):
 - Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
 - Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.

- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.
- 2. Delegators:
 - Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.
- 3. Economic Security:
 - Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
 - Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.
2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.
3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.
4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.


HONEY

HONEY | L4T4M570J

Quantitative information

Quantitative sustainability indicators for HONEY

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	HONEY	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	10.11904	kWh/a

Qualitative information

S.4 Consensus Mechanism

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.

- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.
- 2. Delegators:
 - Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.
- 3. Economic Security:
 - Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
 - Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.
2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.
3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.
4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Magic Eden

ME | 7987R7S6H

Quantitative information

Quantitative sustainability indicators for Magic Eden

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Magic Eden	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	10.03606	kWh/a

Qualitative information

S.4 Consensus Mechanism

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.

- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.
- 2. Delegators:
 - Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.
- 3. Economic Security:
 - Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
 - Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.
2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.
3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.
4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Unstable Coin

USDUC | /

Quantitative information

Quantitative sustainability indicators for Unstable Coin

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Unstable Coin	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	9.74594	kWh/a

Qualitative information

S.4 Consensus Mechanism

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.

- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.
- 2. Delegators:
 - Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.
- 3. Economic Security:
 - Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
 - Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.
2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.
3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.
4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for yellow ket

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	yellow ket	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	9.53324	kWh/a

Qualitative information

S.4 Consensus Mechanism

The Avalanche C-Chain uses the Snowman++ consensus mechanism, which is Avalanche’s consensus model for linear blockchains and is implemented through the ProposerVM wrapper. Under this model, validators repeatedly query a small random subset of other validators and converge on a preferred block once the required confidence thresholds are met. Only Primary Network validators are entitled to validate the C-Chain. To participate as a validator on Avalanche mainnet, a node must stake a minimum number of token. Token holders may also participate indirectly by delegating an existing validator. Validator identity and admission to staking require the relevant staking credentials, including BLS proofs of possession under the current staking framework. For block production, Snowman++ uses stake-weighted proposer windows. Through the ProposerVM, block-building opportunities are assigned to proposers in 5-second windows, after which block production may fall back more broadly to validators if necessary. This mechanism is intended to regulate block production while preserving network liveness. Consensus voting itself remains based on repeated sub-sampled polling rather than fixed validator committees. Avalanche documentation describes the finality model as sub-second and treated by the protocol as final and irreversible once accepted, while noting that safety is probabilistic in the formal sense because the probability of conflicting acceptance can be reduced to an arbitrarily low level through the protocol parameters. The protocol does not rely on slashing of staked principal. Instead, validator reward eligibility depends on compliance with protocol conditions, including uptime requirements.

S.5 Incentive Mechanisms and Applicable Fees

The Avalanche C-Chain is secured economically through the native AVAX token. Validator incentives are based primarily on staking rewards, not on redistribution of C-Chain transaction fees. A fixed amount of 360 million AVAX was minted at genesis, while additional AVAX is minted over time as validator rewards, subject to Avalanche's capped token supply framework. Validator rewards are paid at the end of the staking period and are determined by factors such as the validator's stake and compliance with staking conditions. Unlike some proof-of-stake systems, the Avalanche Primary Network does not use slashing of bonded principal as an ordinary penalty mechanism. Instead, the main protocol-level economic consequence for underperformance is the loss of reward eligibility. Where a validator fails to satisfy the applicable uptime requirement during its staking term, that validator does not receive the corresponding staking reward. Transaction fees apply on the C-Chain for transfers and smart-contract execution. The fee model follows EIP-1559 logic, meaning that transactions are priced through a dynamic base fee mechanism. In contrast to Ethereum's validator tip model, C-Chain transaction fees are burned rather than distributed to validators. This means that C-Chain fees function as a supply-reduction mechanism and are intended in part to offset inflation arising from the minting of validator rewards. In addition to ordinary transaction and smart-contract execution fees, Avalanche documentation also recognises protocol fees in connection with other network operations on other chains of the Primary Network, such as certain import or export operations and staking-related actions. However, for the C-Chain itself, the core applicable fee category is the gas fee for transaction inclusion and contract execution, and those fees are handled through the protocol burn mechanism rather than paid to validators or a treasury.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) avalanche is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Ambire AdEx

WALLET | /

Quantitative information

Quantitative sustainability indicators for Ambire AdEx

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Ambire AdEx	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	9.50893	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ambire AdEx is present on the following networks: Base, Ethereum.

Base does not operate its own consensus mechanism or decentralised validator set comparable to a Layer-1 blockchain. As an optimistic rollup Layer-2 network, Base relies on Ethereum's Proof-of-Stake consensus for the finality and settlement of data and state commitments posted to Ethereum Layer 1. Transaction ordering on Base is performed by a sequencer, currently operated by Coinbase. This sequencing function provides transaction ordering and execution on the Layer-2 network but does not constitute a decentralised consensus mechanism. The validity of Layer-2 state transitions is supported by an optimistic fault-proof mechanism, under which incorrect state commitments may be challenged during the applicable dispute period. Accordingly, Base's security model depends on Ethereum Layer 1 for settlement and finality, while Layer-2 transaction ordering remains dependent on the sequencer.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the

canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ambire AdEx is present on the following networks: Base, Ethereum.

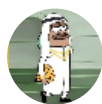
Base does not have a native protocol token and does not operate a staking, validator reward or token issuance mechanism. Transaction fees on Base are paid in ETH. The economic incentives within the network are primarily related to transaction processing and network security. Transactions are executed on Base and periodically submitted to Ethereum Layer 1 in batches. As the cost of a Layer-1 submission is shared among multiple Layer-2 transactions, the average transaction cost per transaction may be lower than executing the same transactions directly on Ethereum Layer 1. The integrity of withdrawals from Base is supported by a fault-proof mechanism. Withdrawals are subject to a dispute period during which participants may challenge incorrect state commitments. The dispute process incorporates economic incentives intended to encourage honest behaviour and discourage invalid claims.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) base, ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Mubarak

MUBARAK | WWW3TNHWT

Quantitative information

Quantitative sustainability indicators for Mubarak

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Mubarak	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	9.14215	kWh/a

Qualitative information

S.4 Consensus Mechanism

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

S.5 Incentive Mechanisms and Applicable Fees

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that

proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) `binance_smart_chain` is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.


ai16z

AI16Z | 8SQN5VKWH

Quantitative information

Quantitative sustainability indicators for ai16z

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	ai16z	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	8.97044	kWh/a

Qualitative information

S.4 Consensus Mechanism

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.

- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.
- 2. Delegators:
 - Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.
- 3. Economic Security:
 - Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
 - Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.
2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.
3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.
4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Stablr USD

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Stablr USD	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	8.72124	kWh/a

Qualitative information

S.4 Consensus Mechanism

Stablr USD is present on the following networks: Concordium, Ethereum.

Concordium is a public and permissionless blockchain that employs a Layered Proof-of-Stake (PoS) consensus mechanism combined with a Byzantine Fault Tolerance (BFT) protocol for enhanced security and finality.

Core Components:

1. Layered PoS Structure:

- Proof-of-Stake for Block Production: Concordium uses PoS where users, known as validators, stake their tokens to participate in block creation and validation. Each validator's chances of being selected as the block producer (leader) depend on their staked amount, promoting fair participation.
- Two-Layer Structure: Concordium separates block production and finalization into two distinct layers to increase security and reduce forks:
 - Block Production Layer: Responsible for creating new blocks and proposing them to the network.
 - Finalization Layer: Ensures blocks are finalized using a BFT protocol, making them irreversible once confirmed.

2. Finalization Layer (BFT Protocol):

- Byzantine Fault Tolerance: The finalization layer uses a BFT protocol to validate and finalize blocks, ensuring they cannot be altered once added. This layer provides extra security by minimizing the potential for forks, as finalized blocks are definitive.
- Finalization Committee: A subset of bakers (validators) is chosen as the finalization committee, whose members, known as finalizers, handle the finalization of blocks. This guarantees that confirmed blocks achieve consensus and permanence.

3. Identity-Based Anonymity:

- Identity Verification: Concordium introduces an identity layer that verifies participant identities while maintaining user anonymity. This approach balances regulatory compliance and privacy, ensuring participants are pseudonymous but verifiable.
- Sybil Attack Resistance: The combination of PoS and identity verification reduces the risk of Sybil attacks, as participants must have verified identities to contribute to consensus.

4. Leader Selection and Epochs:

- Leader Selection: In each epoch, a specific baker (validator) is chosen as the leader, responsible for producing blocks. Leader selection uses a random nonce to ensure fairness and unpredictability.
- Epochs: Each epoch lasts one hour, with fixed bakers for the duration. Leader selection within the epoch is based on each baker's relative stake, providing proportional chances for leader selection.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

StabLR USD is present on the following networks: Concordium, Ethereum.

Concordium incentivizes network security, participation, and governance through staking rewards, transaction fees, and a dynamic minting model.

Incentive Mechanisms:

1. Validator Rewards:

- Transaction Fees and Staking Rewards: Validators who contribute to block creation and verification receive transaction fees and staking rewards. This incentivizes validators to uphold network security and stability.
- Baker and Finalizer Rewards: Concordium distributes rewards between bakers (validators creating blocks) and finalizers (validators finalizing blocks). Bakers receive the majority of rewards for their role in block production.

2. Staking Rewards:

- Proportional Rewards: Validators earn rewards based on the size of their stake, encouraging users to participate in staking and network activities. The more CCD tokens staked, the higher the staking reward.
- Governance Participation: By staking, users gain influence in network governance, including protocol upgrades and policy changes. This mechanism aligns validators' interests with the platform's long-term goals.

3. Minting Process and Distribution:

- Daily Minting of CCD Tokens: Concordium mints new CCD tokens daily. This minting rate is governed by preset parameters to control the supply of CCD and ensure a sustainable ecosystem.
- Distribution Model: 10% of newly minted CCD is allocated to the Concordium Foundation as a Platform Development Charge to support development.
- 90% is divided as follows: Baker Rewards: 85% of the 90% is allocated to bakers for their role in block production. Finalizer Rewards: 5% of the 90% is allocated to finalizers, incentivizing their contribution to securing block finality.

Applicable Fees:

- Transaction fees on Concordium vary based on network demand and capacity, adjusting dynamically to ensure sustainable operations.
- Revenue for Validators: Collected fees are used to compensate validators, motivating them to process transactions accurately and efficiently.

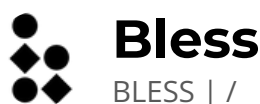
Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) concordium, ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary

principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Bless

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Bless	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	8.46113	kWh/a

Qualitative information

S.4 Consensus Mechanism

Bless is present on the following networks: Binance Smart Chain, Solana.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Bless is present on the following networks: Binance Smart Chain, Solana.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.
- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.

2. Delegators:

- Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.

3. Economic Security:

- Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
- Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.

2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.

3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.

4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) binance_smart_chain, solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.


swarms

swarms | 30KCVXPWP

Quantitative information

Quantitative sustainability indicators for swarms

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	swarms	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	8.31097	kWh/a

Qualitative information

S.4 Consensus Mechanism

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.

- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.
- 2. Delegators:
 - Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.
- 3. Economic Security:
 - Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
 - Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.
2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.
3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.
4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for xU3O8

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	xU3O8	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	8.27820	kWh/a

Qualitative information

S.4 Consensus Mechanism

Etherlink is a Tezos Smart Rollup and therefore does not operate an independent Layer 1 consensus mechanism. A sequencer orders transactions and produces Etherlink blocks, while transaction data and rollup commitments are published to Tezos Layer 1. Rollup operators can verify and challenge commitments through the Smart Rollup refutation mechanism, with settlement ultimately relying on the consensus of Tezos.

S.5 Incentive Mechanisms and Applicable Fees

Transaction fees on Etherlink are paid in XTZ and consist primarily of execution and inclusion costs. Execution fees depend on the computational resources consumed and adjust dynamically with network activity, while inclusion fees account for publishing transaction data to Tezos Layer 1. Execution fees are burned, while the inclusion component compensates the sequencer for the associated data-publication costs.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) etherlink is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of

the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for test griffain com

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	test griffain com	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	8.18869	kWh/a

Qualitative information

S.4 Consensus Mechanism

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):
 - Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
 - Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.
2. Proof of Stake (PoS):
 - Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
 - Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.

- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.
- 2. Delegators:
 - Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.
- 3. Economic Security:
 - Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
 - Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.
2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.
3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.
4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



cat in a dogs world

MEW | 5Z3NS3NDB

Quantitative information

Quantitative sustainability indicators for cat in a dogs world

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	cat in a dogs world	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	7.98343	kWh/a

Qualitative information

S.4 Consensus Mechanism

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.

- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.
- 2. Delegators:
 - Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.
- 3. Economic Security:
 - Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
 - Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.
2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.
3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.
4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Mira

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Mira	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	7.91437	kWh/a

Qualitative information

S.4 Consensus Mechanism

Mira is present on the following networks: Base, Binance Smart Chain.

Base does not operate its own consensus mechanism or decentralised validator set comparable to a Layer-1 blockchain. As an optimistic rollup Layer-2 network, Base relies on Ethereum's Proof-of-Stake consensus for the finality and settlement of data and state commitments posted to Ethereum Layer 1. Transaction ordering on Base is performed by a sequencer, currently operated by Coinbase. This sequencing function provides transaction ordering and execution on the Layer-2 network but does not constitute a decentralised consensus mechanism. The validity of Layer-2 state transitions is supported by an optimistic fault-proof mechanism, under which incorrect state commitments may be challenged during the applicable dispute period. Accordingly, Base's security model depends on Ethereum Layer 1 for settlement and finality, while Layer-2 transaction ordering remains dependent on the sequencer.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 "Cabinet" validators and 24 "Candidate" validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by

validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

S.5 Incentive Mechanisms and Applicable Fees

Mira is present on the following networks: Base, Binance Smart Chain.

Base does not have a native protocol token and does not operate a staking, validator reward or token issuance mechanism. Transaction fees on Base are paid in ETH. The economic incentives within the network are primarily related to transaction processing and network security. Transactions are executed on Base and periodically submitted to Ethereum Layer 1 in batches. As the cost of a Layer-1 submission is shared among multiple Layer-2 transactions, the average transaction cost per transaction may be lower than executing the same transactions directly on Ethereum Layer 1. The integrity of withdrawals from Base is supported by a fault-proof mechanism. Withdrawals are subject to a dispute period during which participants may challenge incorrect state commitments. The dispute process incorporates economic incentives intended to encourage honest behaviour and discourage invalid claims.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) base, binance_smart_chain is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



RETARDIO

RETARDIO | /

Quantitative information

Quantitative sustainability indicators for RETARDIO

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	RETARDIO	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	7.87362	kWh/a

Qualitative information

S.4 Consensus Mechanism

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.

- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.
- 2. Delegators:
 - Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.
- 3. Economic Security:
 - Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
 - Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.
2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.
3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.
4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Lava Network

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Lava Network	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	7.73544	kWh/a

Qualitative information

S.4 Consensus Mechanism

Lava Network is present on the following networks: Arbitrum, Base, Binance Smart Chain, Osmosis.

Arbitrum is an optimistic rollup that processes transactions on a Layer 2 network and relies on Ethereum for data availability and settlement. A sequencer orders incoming transactions, executes them and publishes compressed transaction batches to Ethereum. Arbitrum nodes can independently reconstruct and verify the resulting Layer 2 state using the transaction data published on the parent chain. Validators submit assertions representing the state of the network. Under the BoLD dispute protocol, conflicting or incorrect assertions may be challenged and resolved through an interactive fraud-proof process on Ethereum. Once an assertion has been confirmed and the applicable challenge process has been completed, the corresponding Layer 2 state is accepted for settlement purposes.

Base does not operate its own consensus mechanism or decentralised validator set comparable to a Layer-1 blockchain. As an optimistic rollup Layer-2 network, Base relies on Ethereum's Proof-of-Stake consensus for the finality and settlement of data and state commitments posted to Ethereum Layer 1. Transaction ordering on Base is performed by a sequencer, currently operated by Coinbase. This sequencing function provides transaction ordering and execution on the Layer-2 network but does not constitute a decentralised consensus mechanism. The validity of Layer-2 state transitions is supported by an optimistic fault-proof mechanism, under which incorrect state commitments may be challenged during the applicable dispute period. Accordingly, Base's security model depends on

Ethereum Layer 1 for settlement and finality, while Layer-2 transaction ordering remains dependent on the sequencer.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Osmosis operates on a Proof of Stake (PoS) consensus mechanism, leveraging the Cosmos SDK and Tendermint Core to provide secure, decentralized, and scalable transaction processing.

Core Components:

- Proof of Stake (PoS): Validators are chosen based on the amount of OSMO tokens they stake or are delegated by other token holders. Validators are responsible for validating transactions, producing blocks, and maintaining network security.
- Cosmos SDK and Tendermint Core: Osmosis uses Tendermint Core for Byzantine Fault Tolerant (BFT) consensus, ensuring fast finality and resistance to attacks as long as less than one-third of validators are malicious.
- Decentralized Governance: OSMO token holders can participate in governance by voting on protocol upgrades and network parameters, fostering a community-driven approach to network development.

S.5 Incentive Mechanisms and Applicable Fees

Lava Network is present on the following networks: Arbitrum, Base, Binance Smart Chain, Osmosis.

Transactions on Arbitrum are subject to fees paid in ETH. The total fee generally consists of a Layer 2 execution component, which covers the computational resources required to process the transaction, and a parent-chain data component, which reflects the cost of publishing compressed transaction data to Ethereum. The amount payable therefore depends on the computational complexity of the transaction, the volume and compressibility of its data and the prevailing cost of data publication on Ethereum. Participants that submit or challenge state assertions under the dispute protocol must provide economic bonds. These bonds are intended to discourage incorrect assertions and compensate successful participants in the dispute process. Withdrawals through the canonical bridge become executable after the relevant Layer 2 state has been confirmed and the applicable challenge period has elapsed.

Base does not have a native protocol token and does not operate a staking, validator reward or token issuance mechanism. Transaction fees on Base are paid in ETH. The economic incentives within the network are primarily related to transaction processing and network security. Transactions are executed on Base and periodically submitted to Ethereum Layer 1 in batches. As the cost of a Layer-1 submission is shared among multiple Layer-2 transactions, the average transaction cost per

transaction may be lower than executing the same transactions directly on Ethereum Layer 1. The integrity of withdrawals from Base is supported by a fault-proof mechanism. Withdrawals are subject to a dispute period during which participants may challenge incorrect state commitments. The dispute process incorporates economic incentives intended to encourage honest behaviour and discourage invalid claims.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Osmosis incentivizes validators, delegators, and liquidity providers through a combination of staking rewards, transaction fees, and liquidity incentives.

Incentive Mechanisms:

- Validator Rewards: Validators earn rewards from transaction fees and block rewards, distributed in OSMO tokens, for their role in securing the network and processing transactions. Delegators who stake their OSMO tokens with validators receive a share of these rewards.
- Liquidity Provider Rewards: Users providing liquidity to Osmosis pools earn swap fees and may receive additional incentives in the form of OSMO tokens to encourage liquidity provision.
- Superfluid Staking: Liquidity providers can participate in superfluid staking, staking a portion of their OSMO tokens within liquidity pools. This mechanism allows users to earn staking rewards while maintaining liquidity in the pools

Applicable Fees:

Transaction Fees: Users pay transaction fees in OSMO tokens for network activities, including swaps, staking, and governance participation. These fees are distributed to validators and delegators, incentivizing their continued participation and support for network security.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) arbitrum, base, binance_smart_chain, osmosis is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Theoriq Token

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Theoriq Token	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	7.65768	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Gmt

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Gmt	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	7.48992	kWh/a

Qualitative information

S.4 Consensus Mechanism

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):
 - Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
 - Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.
2. Proof of Stake (PoS):
 - Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
 - Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.

- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.
- 2. Delegators:
 - Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.
- 3. Economic Security:
 - Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
 - Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.
2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.
3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.
4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for FIGHT

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	FIGHT	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	7.46472	kWh/a

Qualitative information

S.4 Consensus Mechanism

FIGHT is present on the following networks: Binance Smart Chain, Solana.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

FIGHT is present on the following networks: Binance Smart Chain, Solana.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.
- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.

2. Delegators:

- Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.

3. Economic Security:

- Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
- Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.

2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.

3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.

4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) binance_smart_chain, solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Augur Reputation Token

REP | B6CQ0H4PC

Quantitative information

Quantitative sustainability indicators for Augur Reputation Token

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Augur Reputation Token	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	7.30315	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.


Parcl

PRCL | JPJ2QRH6R

Quantitative information

Quantitative sustainability indicators for Parcl

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Parcl	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	7.24972	kWh/a

Qualitative information

S.4 Consensus Mechanism

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.

- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.
- 2. Delegators:
 - Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.
- 3. Economic Security:
 - Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
 - Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.
2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.
3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.
4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Quantoz EURQ

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Quantoz EURQ	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	7.01954	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Alchemist AI

ALCH | /

Quantitative information

Quantitative sustainability indicators for Alchemist AI

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Alchemist AI	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	6.97895	kWh/a

Qualitative information

S.4 Consensus Mechanism

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.

- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.
- 2. Delegators:
 - Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.
- 3. Economic Security:
 - Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
 - Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.
2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.
3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.
4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Huma Finance

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Huma Finance	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	6.95669	kWh/a

Qualitative information

S.4 Consensus Mechanism

Huma Finance is present on the following networks: Binance Smart Chain, Solana.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Huma Finance is present on the following networks: Binance Smart Chain, Solana.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.
- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.

2. Delegators:

- Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.

3. Economic Security:

- Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
- Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.

2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.

3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.

4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) binance_smart_chain, solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Neiro

NEIRO | Q4TK4Q00M

Quantitative information

Quantitative sustainability indicators for Neiro

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Neiro	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	6.59411	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.


StaFi

FIS | 3HNNH358VV

Quantitative information

Quantitative sustainability indicators for StaFi

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	StaFi	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	6.45230	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.


DOGS

DOGS | JTT6RNXDG

Quantitative information

Quantitative sustainability indicators for DOGS

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	DOGS	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	6.45054	kWh/a

Qualitative information

S.4 Consensus Mechanism

The Open Network uses a Proof-of-Stake (PoS) consensus mechanism based on the Catchain protocol. Validators stake GRAM to participate in block production, transaction validation, and network security. Catchain provides Byzantine Fault Tolerant (BFT) consensus across the network's sharded architecture, enabling multiple shardchains to process transactions in parallel while maintaining a consistent global state. Validators are selected and rotated periodically, and once consensus is reached, blocks achieve deterministic finality.

S.5 Incentive Mechanisms and Applicable Fees

The Open Network incentivizes network participation through staking rewards and transaction fees. Validators receive rewards for producing blocks, validating transactions, and maintaining network security, with rewards distributed according to their participation and stake. Transaction fees are paid in GRAM and vary depending on the computational resources required by a transaction. The protocol also applies penalties to validators that fail to meet their obligations or act maliciously, encouraging reliable network operation and honest participation.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) toncoin is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Hamster Kombat

HMSTR | S770D4DST

Quantitative information

Quantitative sustainability indicators for Hamster Kombat

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Hamster Kombat	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	6.45054	kWh/a

Qualitative information

S.4 Consensus Mechanism

The Open Network uses a Proof-of-Stake (PoS) consensus mechanism based on the Catchain protocol. Validators stake GRAM to participate in block production, transaction validation, and network security. Catchain provides Byzantine Fault Tolerant (BFT) consensus across the network's sharded architecture, enabling multiple shardchains to process transactions in parallel while maintaining a consistent global state. Validators are selected and rotated periodically, and once consensus is reached, blocks achieve deterministic finality.

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The Open Network incentivizes network participation through staking rewards and transaction fees. Validators receive rewards for producing blocks, validating transactions, and maintaining network security, with rewards distributed according to their participation and stake. Transaction fees are paid in GRAM and vary depending on the computational resources required by a transaction. The protocol also applies penalties to validators that fail to meet their obligations or act maliciously, encouraging reliable network operation and honest participation.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) toncoin is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for NOT

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	NOT	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	6.45054	kWh/a

Qualitative information

S.4 Consensus Mechanism

The Open Network uses a Proof-of-Stake (PoS) consensus mechanism based on the Catchain protocol. Validators stake GRAM to participate in block production, transaction validation, and network security. Catchain provides Byzantine Fault Tolerant (BFT) consensus across the network's sharded architecture, enabling multiple shardchains to process transactions in parallel while maintaining a consistent global state. Validators are selected and rotated periodically, and once consensus is reached, blocks achieve deterministic finality.

S.5 Incentive Mechanisms and Applicable Fees

The Open Network incentivizes network participation through staking rewards and transaction fees. Validators receive rewards for producing blocks, validating transactions, and maintaining network security, with rewards distributed according to their participation and stake. Transaction fees are paid in GRAM and vary depending on the computational resources required by a transaction. The protocol also applies penalties to validators that fail to meet their obligations or act maliciously, encouraging reliable network operation and honest participation.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) toncoin is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Lock In

LOCKIN | /

Quantitative information

Quantitative sustainability indicators for Lock In

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Lock In	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	6.43865	kWh/a

Qualitative information

S.4 Consensus Mechanism

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.

- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.
- 2. Delegators:
 - Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.
- 3. Economic Security:
 - Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
 - Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.
2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.
3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.
4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for UNFI

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	UNFI	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	6.22706	kWh/a

Qualitative information

S.4 Consensus Mechanism

UNFI is present on the following networks: Binance Smart Chain, Ethereum.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon

Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

UNFI is present on the following networks: Binance Smart Chain, Ethereum.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to

slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) binance_smart_chain, ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for MYX Finance

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	MYX Finance	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	6.15092	kWh/a

Qualitative information

S.4 Consensus Mechanism

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

S.5 Incentive Mechanisms and Applicable Fees

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that

proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) `binance_smart_chain` is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Aventus

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Aventus	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	6.09778	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Forest Protocol

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Forest Protocol	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	5.90854	kWh/a

Qualitative information

S.4 Consensus Mechanism

Forest Protocol is present on the following networks: Binance Smart Chain, Ethereum.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon

Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Forest Protocol is present on the following networks: Binance Smart Chain, Ethereum.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to

slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) binance_smart_chain, ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for BOB

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	BOB	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	5.88507	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Robonomics

XRT | /

Quantitative information

Quantitative sustainability indicators for Robonomics

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Robonomics	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	5.74326	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Balance

EPT | /

Quantitative information

Quantitative sustainability indicators for Balance

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Balance	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	5.68535	kWh/a

Qualitative information

S.4 Consensus Mechanism

Balance is present on the following networks: Binance Smart Chain, Ethereum.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon

Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Balance is present on the following networks: Binance Smart Chain, Ethereum.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to

slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) binance_smart_chain, ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for ROOK

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	ROOK	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	5.53054	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Almanak

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Almanak	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	5.46258	kWh/a

Qualitative information

S.4 Consensus Mechanism

Almanak is present on the following networks: Arbitrum, Base, Binance Smart Chain, Ethereum.

Arbitrum is an optimistic rollup that processes transactions on a Layer 2 network and relies on Ethereum for data availability and settlement. A sequencer orders incoming transactions, executes them and publishes compressed transaction batches to Ethereum. Arbitrum nodes can independently reconstruct and verify the resulting Layer 2 state using the transaction data published on the parent chain. Validators submit assertions representing the state of the network. Under the BoLD dispute protocol, conflicting or incorrect assertions may be challenged and resolved through an interactive fraud-proof process on Ethereum. Once an assertion has been confirmed and the applicable challenge process has been completed, the corresponding Layer 2 state is accepted for settlement purposes.

Base does not operate its own consensus mechanism or decentralised validator set comparable to a Layer-1 blockchain. As an optimistic rollup Layer-2 network, Base relies on Ethereum's Proof-of-Stake consensus for the finality and settlement of data and state commitments posted to Ethereum Layer 1. Transaction ordering on Base is performed by a sequencer, currently operated by Coinbase. This sequencing function provides transaction ordering and execution on the Layer-2 network but does not constitute a decentralised consensus mechanism. The validity of Layer-2 state transitions is supported by an optimistic fault-proof mechanism, under which incorrect state commitments may be challenged during the applicable dispute period. Accordingly, Base's security model depends on

Ethereum Layer 1 for settlement and finality, while Layer-2 transaction ordering remains dependent on the sequencer.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum’s consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Almanak is present on the following networks: Arbitrum, Base, Binance Smart Chain, Ethereum.

Transactions on Arbitrum are subject to fees paid in ETH. The total fee generally consists of a Layer 2 execution component, which covers the computational resources required to process the transaction, and a parent-chain data component, which reflects the cost of publishing compressed transaction data to Ethereum. The amount payable therefore depends on the computational complexity of the transaction, the volume and compressibility of its data and the prevailing cost of data publication on Ethereum. Participants that submit or challenge state assertions under the dispute protocol must provide economic bonds. These bonds are intended to discourage incorrect assertions and compensate successful participants in the dispute process. Withdrawals through the canonical bridge become executable after the relevant Layer 2 state has been confirmed and the applicable challenge period has elapsed.

Base does not have a native protocol token and does not operate a staking, validator reward or token issuance mechanism. Transaction fees on Base are paid in ETH. The economic incentives within the network are primarily related to transaction processing and network security. Transactions are executed on Base and periodically submitted to Ethereum Layer 1 in batches. As the cost of a Layer-1 submission is shared among multiple Layer-2 transactions, the average transaction cost per

transaction may be lower than executing the same transactions directly on Ethereum Layer 1. The integrity of withdrawals from Base is supported by a fault-proof mechanism. Withdrawals are subject to a dispute period during which participants may challenge incorrect state commitments. The dispute process incorporates economic incentives intended to encourage honest behaviour and discourage invalid claims.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) arbitrum, base, binance_smart_chain, ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for SUKU

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	SUKU	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	5.45964	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Zeus Network

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Zeus Network	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	5.45913	kWh/a

Qualitative information

S.4 Consensus Mechanism

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):
 - Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
 - Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.
2. Proof of Stake (PoS):
 - Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
 - Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.

- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.
- 2. Delegators:
 - Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.
- 3. Economic Security:
 - Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
 - Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.
2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.
3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.
4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Avantis

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Avantis	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	5.36762	kWh/a

Qualitative information

S.4 Consensus Mechanism

Base does not operate its own consensus mechanism or decentralised validator set comparable to a Layer-1 blockchain. As an optimistic rollup Layer-2 network, Base relies on Ethereum's Proof-of-Stake consensus for the finality and settlement of data and state commitments posted to Ethereum Layer 1. Transaction ordering on Base is performed by a sequencer, currently operated by Coinbase. This sequencing function provides transaction ordering and execution on the Layer-2 network but does not constitute a decentralised consensus mechanism. The validity of Layer-2 state transitions is supported by an optimistic fault-proof mechanism, under which incorrect state commitments may be challenged during the applicable dispute period. Accordingly, Base's security model depends on Ethereum Layer 1 for settlement and finality, while Layer-2 transaction ordering remains dependent on the sequencer.

S.5 Incentive Mechanisms and Applicable Fees

Base does not have a native protocol token and does not operate a staking, validator reward or token issuance mechanism. Transaction fees on Base are paid in ETH. The economic incentives within the network are primarily related to transaction processing and network security. Transactions are executed on Base and periodically submitted to Ethereum Layer 1 in batches. As the cost of a Layer-1 submission is shared among multiple Layer-2 transactions, the average transaction cost per transaction may be lower than executing the same transactions directly on Ethereum Layer 1. The integrity of withdrawals from Base is supported by a fault-proof mechanism. Withdrawals are subject to a dispute period during which participants may challenge incorrect state commitments. The

dispute process incorporates economic incentives intended to encourage honest behaviour and discourage invalid claims.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) base is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for OLAXBOT

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	OLAXBOT	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	5.27811	kWh/a

Qualitative information

S.4 Consensus Mechanism

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

S.5 Incentive Mechanisms and Applicable Fees

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that

proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) `binance_smart_chain` is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for SOON

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	SOON	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	5.09337	kWh/a

Qualitative information

S.4 Consensus Mechanism

SOON is present on the following networks: Base, Binance Smart Chain, Solana.

Base does not operate its own consensus mechanism or decentralised validator set comparable to a Layer-1 blockchain. As an optimistic rollup Layer-2 network, Base relies on Ethereum's Proof-of-Stake consensus for the finality and settlement of data and state commitments posted to Ethereum Layer 1. Transaction ordering on Base is performed by a sequencer, currently operated by Coinbase. This sequencing function provides transaction ordering and execution on the Layer-2 network but does not constitute a decentralised consensus mechanism. The validity of Layer-2 state transitions is supported by an optimistic fault-proof mechanism, under which incorrect state commitments may be challenged during the applicable dispute period. Accordingly, Base's security model depends on Ethereum Layer 1 for settlement and finality, while Layer-2 transaction ordering remains dependent on the sequencer.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 "Cabinet" validators and 24 "Candidate" validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by

validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.

- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.
2. Security:
- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
 - Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.
3. Economic Penalties:
- Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

SOON is present on the following networks: Base, Binance Smart Chain, Solana.

Base does not have a native protocol token and does not operate a staking, validator reward or token issuance mechanism. Transaction fees on Base are paid in ETH. The economic incentives within the network are primarily related to transaction processing and network security. Transactions are executed on Base and periodically submitted to Ethereum Layer 1 in batches. As the cost of a Layer-1 submission is shared among multiple Layer-2 transactions, the average transaction cost per transaction may be lower than executing the same transactions directly on Ethereum Layer 1. The integrity of withdrawals from Base is supported by a fault-proof mechanism. Withdrawals are subject to a dispute period during which participants may challenge incorrect state commitments. The dispute process incorporates economic incentives intended to encourage honest behaviour and discourage invalid claims.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator

commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.
- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.

2. Delegators:

- Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.

3. Economic Security:

- Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
- Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties. Fees Applicable on the Solana Blockchain

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.

2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.

3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.

4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) base, binance_smart_chain, solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Oxygen

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Oxygen	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	5.02515	kWh/a

Qualitative information

S.4 Consensus Mechanism

Oxygen is present on the following networks: Ethereum, Solana.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Oxygen is present on the following networks: Ethereum, Solana.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.
- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.

2. Delegators:

- Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.

3. Economic Security:

- Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
- Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties. Fees Applicable on the Solana Blockchain

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.

2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.

3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.

4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum, solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for CARV

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	CARV	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	5.01669	kWh/a

Qualitative information

S.4 Consensus Mechanism

CARV is present on the following networks: Arbitrum, Base, Ethereum, Solana.

Arbitrum is an optimistic rollup that processes transactions on a Layer 2 network and relies on Ethereum for data availability and settlement. A sequencer orders incoming transactions, executes them and publishes compressed transaction batches to Ethereum. Arbitrum nodes can independently reconstruct and verify the resulting Layer 2 state using the transaction data published on the parent chain. Validators submit assertions representing the state of the network. Under the BoLD dispute protocol, conflicting or incorrect assertions may be challenged and resolved through an interactive fraud-proof process on Ethereum. Once an assertion has been confirmed and the applicable challenge process has been completed, the corresponding Layer 2 state is accepted for settlement purposes.

Base does not operate its own consensus mechanism or decentralised validator set comparable to a Layer-1 blockchain. As an optimistic rollup Layer-2 network, Base relies on Ethereum's Proof-of-Stake consensus for the finality and settlement of data and state commitments posted to Ethereum Layer 1. Transaction ordering on Base is performed by a sequencer, currently operated by Coinbase. This sequencing function provides transaction ordering and execution on the Layer-2 network but does not constitute a decentralised consensus mechanism. The validity of Layer-2 state transitions is supported by an optimistic fault-proof mechanism, under which incorrect state commitments may be challenged during the applicable dispute period. Accordingly, Base's security model depends on

Ethereum Layer 1 for settlement and finality, while Layer-2 transaction ordering remains dependent on the sequencer.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

CARV is present on the following networks: Arbitrum, Base, Ethereum, Solana.

Transactions on Arbitrum are subject to fees paid in ETH. The total fee generally consists of a Layer 2 execution component, which covers the computational resources required to process the transaction, and a parent-chain data component, which reflects the cost of publishing compressed transaction data to Ethereum. The amount payable therefore depends on the computational complexity of the transaction, the volume and compressibility of its data and the prevailing cost of data publication on Ethereum. Participants that submit or challenge state assertions under the dispute protocol must provide economic bonds. These bonds are intended to discourage incorrect assertions and compensate successful participants in the dispute process. Withdrawals through the canonical bridge become executable after the relevant Layer 2 state has been confirmed and the applicable challenge period has elapsed.

Base does not have a native protocol token and does not operate a staking, validator reward or token issuance mechanism. Transaction fees on Base are paid in ETH. The economic incentives within the network are primarily related to transaction processing and network security. Transactions are executed on Base and periodically submitted to Ethereum Layer 1 in batches. As the cost of a Layer-1 submission is shared among multiple Layer-2 transactions, the average transaction cost per transaction may be lower than executing the same transactions directly on Ethereum Layer 1. The integrity of withdrawals from Base is supported by a fault-proof mechanism. Withdrawals are subject to a dispute period during which participants may challenge incorrect state commitments. The dispute process incorporates economic incentives intended to encourage honest behaviour and discourage invalid claims.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.
- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.

2. Delegators:

- Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.

3. Economic Security:

- Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
- Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties. Fees Applicable on the Solana Blockchain

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.

2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.

3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.

4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) arbitrum, base, ethereum, solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Bifrost

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Bifrost	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	4.96331	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Dai Token

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Dai Token	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	4.77112	kWh/a

Qualitative information

S.4 Consensus Mechanism

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

S.5 Incentive Mechanisms and Applicable Fees

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that

proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) `binance_smart_chain` is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for PlayDapp

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	PlayDapp	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	4.67969	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Test

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Test	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	4.45104	kWh/a

Qualitative information

S.4 Consensus Mechanism

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

S.5 Incentive Mechanisms and Applicable Fees

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that

proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) `binance_smart_chain` is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.


Toshi

TOSHI | WT9GJ1K9R

Quantitative information

Quantitative sustainability indicators for Toshi

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Toshi	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	4.39793	kWh/a

Qualitative information

S.4 Consensus Mechanism

Base does not operate its own consensus mechanism or decentralised validator set comparable to a Layer-1 blockchain. As an optimistic rollup Layer-2 network, Base relies on Ethereum's Proof-of-Stake consensus for the finality and settlement of data and state commitments posted to Ethereum Layer 1. Transaction ordering on Base is performed by a sequencer, currently operated by Coinbase. This sequencing function provides transaction ordering and execution on the Layer-2 network but does not constitute a decentralised consensus mechanism. The validity of Layer-2 state transitions is supported by an optimistic fault-proof mechanism, under which incorrect state commitments may be challenged during the applicable dispute period. Accordingly, Base's security model depends on Ethereum Layer 1 for settlement and finality, while Layer-2 transaction ordering remains dependent on the sequencer.

S.5 Incentive Mechanisms and Applicable Fees

Base does not have a native protocol token and does not operate a staking, validator reward or token issuance mechanism. Transaction fees on Base are paid in ETH. The economic incentives within the network are primarily related to transaction processing and network security. Transactions are executed on Base and periodically submitted to Ethereum Layer 1 in batches. As the cost of a Layer-1 submission is shared among multiple Layer-2 transactions, the average transaction cost per transaction may be lower than executing the same transactions directly on Ethereum Layer 1. The integrity of withdrawals from Base is supported by a fault-proof mechanism. Withdrawals are subject to a dispute period during which participants may challenge incorrect state commitments. The

dispute process incorporates economic incentives intended to encourage honest behaviour and discourage invalid claims.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) base is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.


Coin98

C98 | HP7M2N1QF

Quantitative information

Quantitative sustainability indicators for Coin98

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Coin98	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	4.23877	kWh/a

Qualitative information

S.4 Consensus Mechanism

Coin98 is present on the following networks: Avalanche, Binance Smart Chain, Solana.

The Avalanche C-Chain uses the Snowman++ consensus mechanism, which is Avalanche's consensus model for linear blockchains and is implemented through the ProposerVM wrapper. Under this model, validators repeatedly query a small random subset of other validators and converge on a preferred block once the required confidence thresholds are met. Only Primary Network validators are entitled to validate the C-Chain. To participate as a validator on Avalanche mainnet, a node must stake a minimum number of token. Token holders may also participate indirectly by delegating an existing validator. Validator identity and admission to staking require the relevant staking credentials, including BLS proofs of possession under the current staking framework. For block production, Snowman++ uses stake-weighted proposer windows. Through the ProposerVM, block-building opportunities are assigned to proposers in 5-second windows, after which block production may fall back more broadly to validators if necessary. This mechanism is intended to regulate block production while preserving network liveness. Consensus voting itself remains based on repeated sub-sampled polling rather than fixed validator committees. Avalanche documentation describes the finality model as sub-second and treated by the protocol as final and irreversible once accepted, while noting that safety is probabilistic in the formal sense because the probability of conflicting acceptance can be reduced to an arbitrarily low level through the protocol parameters. The protocol does not rely on slashing of staked principal. Instead, validator reward eligibility depends on compliance with protocol conditions, including uptime requirements.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Coin98 is present on the following networks: Avalanche, Binance Smart Chain, Solana.

The Avalanche C-Chain is secured economically through the native AVAX token. Validator incentives are based primarily on staking rewards, not on redistribution of C-Chain transaction fees. A fixed amount of 360 million AVAX was minted at genesis, while additional AVAX is minted over time as validator rewards, subject to Avalanche's capped token supply framework. Validator rewards are paid at the end of the staking period and are determined by factors such as the validator's stake and compliance with staking conditions. Unlike some proof-of-stake systems, the Avalanche Primary Network does not use slashing of bonded principal as an ordinary penalty mechanism. Instead, the main protocol-level economic consequence for underperformance is the loss of reward eligibility. Where a validator fails to satisfy the applicable uptime requirement during its staking term, that validator does not receive the corresponding staking reward. Transaction fees apply on the C-Chain for transfers and smart-contract execution. The fee model follows EIP-1559 logic, meaning that transactions are priced through a dynamic base fee mechanism. In contrast to Ethereum's validator tip model, C-Chain transaction fees are burned rather than distributed to validators. This means that C-Chain fees function as a supply-reduction mechanism and are intended in part to offset inflation arising from the minting of validator rewards. In addition to ordinary transaction and smart-contract execution fees, Avalanche documentation also recognises protocol fees in connection with other network operations on other chains of the Primary Network, such as certain import or export operations and staking-related actions. However, for the C-Chain itself, the core applicable fee category is the gas fee for transaction inclusion and contract execution, and those fees are handled through the protocol burn mechanism rather than paid to validators or a treasury.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block

production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.
- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.

2. Delegators:

- Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.

3. Economic Security:

- Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
- Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties. Fees Applicable on the Solana Blockchain

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.

2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.

3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.

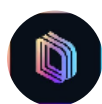
4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) avalanche, binance_smart_chain, solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.


Drift

DRIFT | 6RVP9P5TB

Quantitative information

Quantitative sustainability indicators for Drift

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Drift	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	3.90000	kWh/a

Qualitative information

S.4 Consensus Mechanism

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.

- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.
- 2. Delegators:
 - Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.
- 3. Economic Security:
 - Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
 - Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.
2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.
3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.
4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Moonchain

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Moonchain	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	3.84248	kWh/a

Qualitative information

S.4 Consensus Mechanism

Moonchain is present on the following networks: Arbitrum, Ethereum.

Arbitrum is an optimistic rollup that processes transactions on a Layer 2 network and relies on Ethereum for data availability and settlement. A sequencer orders incoming transactions, executes them and publishes compressed transaction batches to Ethereum. Arbitrum nodes can independently reconstruct and verify the resulting Layer 2 state using the transaction data published on the parent chain. Validators submit assertions representing the state of the network. Under the BoLD dispute protocol, conflicting or incorrect assertions may be challenged and resolved through an interactive fraud-proof process on Ethereum. Once an assertion has been confirmed and the applicable challenge process has been completed, the corresponding Layer 2 state is accepted for settlement purposes.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in

certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Moonchain is present on the following networks: Arbitrum, Ethereum.

Transactions on Arbitrum are subject to fees paid in ETH. The total fee generally consists of a Layer 2 execution component, which covers the computational resources required to process the transaction, and a parent-chain data component, which reflects the cost of publishing compressed transaction data to Ethereum. The amount payable therefore depends on the computational complexity of the transaction, the volume and compressibility of its data and the prevailing cost of data publication on Ethereum. Participants that submit or challenge state assertions under the dispute protocol must provide economic bonds. These bonds are intended to discourage incorrect assertions and compensate successful participants in the dispute process. Withdrawals through the canonical bridge become executable after the relevant Layer 2 state has been confirmed and the applicable challenge period has elapsed.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) arbitrum, ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



B3

B3 | BPLSKNPD9

Quantitative information

Quantitative sustainability indicators for B3

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	B3	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	3.81877	kWh/a

Qualitative information

S.4 Consensus Mechanism

Base does not operate its own consensus mechanism or decentralised validator set comparable to a Layer-1 blockchain. As an optimistic rollup Layer-2 network, Base relies on Ethereum's Proof-of-Stake consensus for the finality and settlement of data and state commitments posted to Ethereum Layer 1. Transaction ordering on Base is performed by a sequencer, currently operated by Coinbase. This sequencing function provides transaction ordering and execution on the Layer-2 network but does not constitute a decentralised consensus mechanism. The validity of Layer-2 state transitions is supported by an optimistic fault-proof mechanism, under which incorrect state commitments may be challenged during the applicable dispute period. Accordingly, Base's security model depends on Ethereum Layer 1 for settlement and finality, while Layer-2 transaction ordering remains dependent on the sequencer.

S.5 Incentive Mechanisms and Applicable Fees

Base does not have a native protocol token and does not operate a staking, validator reward or token issuance mechanism. Transaction fees on Base are paid in ETH. The economic incentives within the network are primarily related to transaction processing and network security. Transactions are executed on Base and periodically submitted to Ethereum Layer 1 in batches. As the cost of a Layer-1 submission is shared among multiple Layer-2 transactions, the average transaction cost per transaction may be lower than executing the same transactions directly on Ethereum Layer 1. The integrity of withdrawals from Base is supported by a fault-proof mechanism. Withdrawals are subject to a dispute period during which participants may challenge incorrect state commitments. The

dispute process incorporates economic incentives intended to encourage honest behaviour and discourage invalid claims.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) base is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Squid

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Squid	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	3.80095	kWh/a

Qualitative information

S.4 Consensus Mechanism

Base does not operate its own consensus mechanism or decentralised validator set comparable to a Layer-1 blockchain. As an optimistic rollup Layer-2 network, Base relies on Ethereum's Proof-of-Stake consensus for the finality and settlement of data and state commitments posted to Ethereum Layer 1. Transaction ordering on Base is performed by a sequencer, currently operated by Coinbase. This sequencing function provides transaction ordering and execution on the Layer-2 network but does not constitute a decentralised consensus mechanism. The validity of Layer-2 state transitions is supported by an optimistic fault-proof mechanism, under which incorrect state commitments may be challenged during the applicable dispute period. Accordingly, Base's security model depends on Ethereum Layer 1 for settlement and finality, while Layer-2 transaction ordering remains dependent on the sequencer.

S.5 Incentive Mechanisms and Applicable Fees

Base does not have a native protocol token and does not operate a staking, validator reward or token issuance mechanism. Transaction fees on Base are paid in ETH. The economic incentives within the network are primarily related to transaction processing and network security. Transactions are executed on Base and periodically submitted to Ethereum Layer 1 in batches. As the cost of a Layer-1 submission is shared among multiple Layer-2 transactions, the average transaction cost per transaction may be lower than executing the same transactions directly on Ethereum Layer 1. The integrity of withdrawals from Base is supported by a fault-proof mechanism. Withdrawals are subject to a dispute period during which participants may challenge incorrect state commitments. The

dispute process incorporates economic incentives intended to encourage honest behaviour and discourage invalid claims.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) base is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Housecoin

HOUSE | /

Quantitative information

Quantitative sustainability indicators for Housecoin

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Housecoin	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	3.78083	kWh/a

Qualitative information

S.4 Consensus Mechanism

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.

- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.
- 2. Delegators:
 - Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.
- 3. Economic Security:
 - Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
 - Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.
2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.
3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.
4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for SatLayer

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	SatLayer	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	3.76810	kWh/a

Qualitative information

S.4 Consensus Mechanism

SatLayer is present on the following networks: Base, Binance Smart Chain, Ethereum.

Base does not operate its own consensus mechanism or decentralised validator set comparable to a Layer-1 blockchain. As an optimistic rollup Layer-2 network, Base relies on Ethereum's Proof-of-Stake consensus for the finality and settlement of data and state commitments posted to Ethereum Layer 1. Transaction ordering on Base is performed by a sequencer, currently operated by Coinbase. This sequencing function provides transaction ordering and execution on the Layer-2 network but does not constitute a decentralised consensus mechanism. The validity of Layer-2 state transitions is supported by an optimistic fault-proof mechanism, under which incorrect state commitments may be challenged during the applicable dispute period. Accordingly, Base's security model depends on Ethereum Layer 1 for settlement and finality, while Layer-2 transaction ordering remains dependent on the sequencer.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 "Cabinet" validators and 24 "Candidate" validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by

validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

SatLayer is present on the following networks: Base, Binance Smart Chain, Ethereum.

Base does not have a native protocol token and does not operate a staking, validator reward or token issuance mechanism. Transaction fees on Base are paid in ETH. The economic incentives within the network are primarily related to transaction processing and network security. Transactions are executed on Base and periodically submitted to Ethereum Layer 1 in batches. As the cost of a Layer-1 submission is shared among multiple Layer-2 transactions, the average transaction cost per transaction may be lower than executing the same transactions directly on Ethereum Layer 1. The integrity of withdrawals from Base is supported by a fault-proof mechanism. Withdrawals are subject to a dispute period during which participants may challenge incorrect state commitments. The dispute process incorporates economic incentives intended to encourage honest behaviour and discourage invalid claims.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The

staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) base, binance_smart_chain, ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Tensor

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Tensor	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	3.66417	kWh/a

Qualitative information

S.4 Consensus Mechanism

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):
 - Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
 - Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.
2. Proof of Stake (PoS):
 - Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
 - Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.

- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.
- 2. Delegators:
 - Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.
- 3. Economic Security:
 - Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
 - Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.
2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.
3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.
4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Wingbits

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Wingbits	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	3.64919	kWh/a

Qualitative information

S.4 Consensus Mechanism

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):
 - Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
 - Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.
2. Proof of Stake (PoS):
 - Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
 - Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.

- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.
- 2. Delegators:
 - Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.
- 3. Economic Security:
 - Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
 - Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.
2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.
3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.
4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.


PONKE

PONKE | DJLRN98WQ

Quantitative information

Quantitative sustainability indicators for PONKE

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	PONKE	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	3.55935	kWh/a

Qualitative information

S.4 Consensus Mechanism

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.

- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.
- 2. Delegators:
 - Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.
- 3. Economic Security:
 - Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
 - Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.
2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.
3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.
4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Pipe Network

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Pipe Network	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	3.49821	kWh/a

Qualitative information

S.4 Consensus Mechanism

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):
 - Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
 - Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.
2. Proof of Stake (PoS):
 - Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
 - Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.

- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.
- 2. Delegators:
 - Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.
- 3. Economic Security:
 - Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
 - Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.
2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.
3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.
4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.


SelfKey

KEY | 5GHXJSGXK

Quantitative information

Quantitative sustainability indicators for SelfKey

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	SelfKey	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	3.47432	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Corn

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Corn	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	3.40341	kWh/a

Qualitative information

S.4 Consensus Mechanism

Corn is present on the following networks: Corn, Ethereum.

Corn is an Ethereum Layer 2 network built using the Arbitrum Orbit framework, designed to enhance Bitcoin's utility within decentralized finance (DeFi). The network employs a dual-security model: it inherits Ethereum's security through Arbitrum's rollup technology.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Corn is present on the following networks: Corn, Ethereum.

The Corn network utilizes a dual-token system comprising \$CORN and BTCN. BTCN serves as the gas token for transaction fees, allowing users to pay fees in a Bitcoin-equivalent asset. \$CORN functions as the governance and incentive token within the ecosystem.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) corn, ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for tokenbot

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	tokenbot	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	3.35325	kWh/a

Qualitative information

S.4 Consensus Mechanism

Base does not operate its own consensus mechanism or decentralised validator set comparable to a Layer-1 blockchain. As an optimistic rollup Layer-2 network, Base relies on Ethereum's Proof-of-Stake consensus for the finality and settlement of data and state commitments posted to Ethereum Layer 1. Transaction ordering on Base is performed by a sequencer, currently operated by Coinbase. This sequencing function provides transaction ordering and execution on the Layer-2 network but does not constitute a decentralised consensus mechanism. The validity of Layer-2 state transitions is supported by an optimistic fault-proof mechanism, under which incorrect state commitments may be challenged during the applicable dispute period. Accordingly, Base's security model depends on Ethereum Layer 1 for settlement and finality, while Layer-2 transaction ordering remains dependent on the sequencer.

S.5 Incentive Mechanisms and Applicable Fees

Base does not have a native protocol token and does not operate a staking, validator reward or token issuance mechanism. Transaction fees on Base are paid in ETH. The economic incentives within the network are primarily related to transaction processing and network security. Transactions are executed on Base and periodically submitted to Ethereum Layer 1 in batches. As the cost of a Layer-1 submission is shared among multiple Layer-2 transactions, the average transaction cost per transaction may be lower than executing the same transactions directly on Ethereum Layer 1. The integrity of withdrawals from Base is supported by a fault-proof mechanism. Withdrawals are subject to a dispute period during which participants may challenge incorrect state commitments. The

dispute process incorporates economic incentives intended to encourage honest behaviour and discourage invalid claims.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) base is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for elizaOS

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	elizaOS	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	3.25738	kWh/a

Qualitative information

S.4 Consensus Mechanism

elizaOS is present on the following networks: Binance Smart Chain, Ethereum, Solana.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon

Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

elizaOS is present on the following networks: Binance Smart Chain, Ethereum, Solana.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.
- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.

2. Delegators:

- Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.

3. Economic Security:

- Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
- Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties. Fees Applicable on the Solana Blockchain

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.

2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.

3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.

4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) binance_smart_chain, ethereum, solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.


FWOG

FWOG | ZLJGJG83S

Quantitative information

Quantitative sustainability indicators for FWOG

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	FWOG	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	3.16193	kWh/a

Qualitative information

S.4 Consensus Mechanism

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.

- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.
- 2. Delegators:
 - Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.
- 3. Economic Security:
 - Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
 - Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.
2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.
3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.
4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.


Warden

WARD | /

Quantitative information

Quantitative sustainability indicators for Warden

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Warden	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	3.11206	kWh/a

Qualitative information

S.4 Consensus Mechanism

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

S.5 Incentive Mechanisms and Applicable Fees

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that

proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) `binance_smart_chain` is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



SIGMA

SIGMA | /

Quantitative information

Quantitative sustainability indicators for SIGMA

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	SIGMA	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	3.08893	kWh/a

Qualitative information

S.4 Consensus Mechanism

SIGMA is present on the following networks: Ethereum, Solana.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

SIGMA is present on the following networks: Ethereum, Solana.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.
- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.

2. Delegators:

- Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.

3. Economic Security:

- Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
- Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties. Fees Applicable on the Solana Blockchain

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.

2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.

3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.

4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum, solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Maple

MPL | /

Quantitative information

Quantitative sustainability indicators for Maple

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Maple	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	3.04889	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Keeta

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Keeta	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	3.01727	kWh/a

Qualitative information

S.4 Consensus Mechanism

Base does not operate its own consensus mechanism or decentralised validator set comparable to a Layer-1 blockchain. As an optimistic rollup Layer-2 network, Base relies on Ethereum's Proof-of-Stake consensus for the finality and settlement of data and state commitments posted to Ethereum Layer 1. Transaction ordering on Base is performed by a sequencer, currently operated by Coinbase. This sequencing function provides transaction ordering and execution on the Layer-2 network but does not constitute a decentralised consensus mechanism. The validity of Layer-2 state transitions is supported by an optimistic fault-proof mechanism, under which incorrect state commitments may be challenged during the applicable dispute period. Accordingly, Base's security model depends on Ethereum Layer 1 for settlement and finality, while Layer-2 transaction ordering remains dependent on the sequencer.

S.5 Incentive Mechanisms and Applicable Fees

Base does not have a native protocol token and does not operate a staking, validator reward or token issuance mechanism. Transaction fees on Base are paid in ETH. The economic incentives within the network are primarily related to transaction processing and network security. Transactions are executed on Base and periodically submitted to Ethereum Layer 1 in batches. As the cost of a Layer-1 submission is shared among multiple Layer-2 transactions, the average transaction cost per transaction may be lower than executing the same transactions directly on Ethereum Layer 1. The integrity of withdrawals from Base is supported by a fault-proof mechanism. Withdrawals are subject to a dispute period during which participants may challenge incorrect state commitments. The

dispute process incorporates economic incentives intended to encourage honest behaviour and discourage invalid claims.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) base is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Degen

DEGEN | 253CXJJ4H

Quantitative information

Quantitative sustainability indicators for Degen

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Degen	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	2.84569	kWh/a

Qualitative information

S.4 Consensus Mechanism

Base does not operate its own consensus mechanism or decentralised validator set comparable to a Layer-1 blockchain. As an optimistic rollup Layer-2 network, Base relies on Ethereum's Proof-of-Stake consensus for the finality and settlement of data and state commitments posted to Ethereum Layer 1. Transaction ordering on Base is performed by a sequencer, currently operated by Coinbase. This sequencing function provides transaction ordering and execution on the Layer-2 network but does not constitute a decentralised consensus mechanism. The validity of Layer-2 state transitions is supported by an optimistic fault-proof mechanism, under which incorrect state commitments may be challenged during the applicable dispute period. Accordingly, Base's security model depends on Ethereum Layer 1 for settlement and finality, while Layer-2 transaction ordering remains dependent on the sequencer.

S.5 Incentive Mechanisms and Applicable Fees

Base does not have a native protocol token and does not operate a staking, validator reward or token issuance mechanism. Transaction fees on Base are paid in ETH. The economic incentives within the network are primarily related to transaction processing and network security. Transactions are executed on Base and periodically submitted to Ethereum Layer 1 in batches. As the cost of a Layer-1 submission is shared among multiple Layer-2 transactions, the average transaction cost per transaction may be lower than executing the same transactions directly on Ethereum Layer 1. The integrity of withdrawals from Base is supported by a fault-proof mechanism. Withdrawals are subject to a dispute period during which participants may challenge incorrect state commitments. The

dispute process incorporates economic incentives intended to encourage honest behaviour and discourage invalid claims.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) base is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.


USDSM

USDSM | MW2GQD34J

Quantitative information

Quantitative sustainability indicators for USDSM

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	USDSM	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	2.83618	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for titcoin

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	titcoin	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	2.78821	kWh/a

Qualitative information

S.4 Consensus Mechanism

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):
 - Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
 - Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.
2. Proof of Stake (PoS):
 - Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
 - Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.

- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.
- 2. Delegators:
 - Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.
- 3. Economic Security:
 - Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
 - Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.
2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.
3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.
4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Checkmate

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Checkmate	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	2.63684	kWh/a

Qualitative information

S.4 Consensus Mechanism

Checkmate is present on the following networks: Base, Ethereum.

Base does not operate its own consensus mechanism or decentralised validator set comparable to a Layer-1 blockchain. As an optimistic rollup Layer-2 network, Base relies on Ethereum's Proof-of-Stake consensus for the finality and settlement of data and state commitments posted to Ethereum Layer 1. Transaction ordering on Base is performed by a sequencer, currently operated by Coinbase. This sequencing function provides transaction ordering and execution on the Layer-2 network but does not constitute a decentralised consensus mechanism. The validity of Layer-2 state transitions is supported by an optimistic fault-proof mechanism, under which incorrect state commitments may be challenged during the applicable dispute period. Accordingly, Base's security model depends on Ethereum Layer 1 for settlement and finality, while Layer-2 transaction ordering remains dependent on the sequencer.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the

canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Checkmate is present on the following networks: Base, Ethereum.

Base does not have a native protocol token and does not operate a staking, validator reward or token issuance mechanism. Transaction fees on Base are paid in ETH. The economic incentives within the network are primarily related to transaction processing and network security. Transactions are executed on Base and periodically submitted to Ethereum Layer 1 in batches. As the cost of a Layer-1 submission is shared among multiple Layer-2 transactions, the average transaction cost per transaction may be lower than executing the same transactions directly on Ethereum Layer 1. The integrity of withdrawals from Base is supported by a fault-proof mechanism. Withdrawals are subject to a dispute period during which participants may challenge incorrect state commitments. The dispute process incorporates economic incentives intended to encourage honest behaviour and discourage invalid claims.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) base, ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Cheems Token

CHEEMS | /

Quantitative information

Quantitative sustainability indicators for Cheems Token

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Cheems Token	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	2.51024	kWh/a

Qualitative information

S.4 Consensus Mechanism

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 "Cabinet" validators and 24 "Candidate" validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

S.5 Incentive Mechanisms and Applicable Fees

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that

proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) `binance_smart_chain` is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Zeta

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Zeta	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	2.47189	kWh/a

Qualitative information

S.4 Consensus Mechanism

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):
 - Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
 - Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.
2. Proof of Stake (PoS):
 - Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
 - Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.

- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.
- 2. Delegators:
 - Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.
- 3. Economic Security:
 - Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
 - Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.
2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.
3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.
4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for KAITO

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	KAITO	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	2.46918	kWh/a

Qualitative information

S.4 Consensus Mechanism

Base does not operate its own consensus mechanism or decentralised validator set comparable to a Layer-1 blockchain. As an optimistic rollup Layer-2 network, Base relies on Ethereum's Proof-of-Stake consensus for the finality and settlement of data and state commitments posted to Ethereum Layer 1. Transaction ordering on Base is performed by a sequencer, currently operated by Coinbase. This sequencing function provides transaction ordering and execution on the Layer-2 network but does not constitute a decentralised consensus mechanism. The validity of Layer-2 state transitions is supported by an optimistic fault-proof mechanism, under which incorrect state commitments may be challenged during the applicable dispute period. Accordingly, Base's security model depends on Ethereum Layer 1 for settlement and finality, while Layer-2 transaction ordering remains dependent on the sequencer.

S.5 Incentive Mechanisms and Applicable Fees

Base does not have a native protocol token and does not operate a staking, validator reward or token issuance mechanism. Transaction fees on Base are paid in ETH. The economic incentives within the network are primarily related to transaction processing and network security. Transactions are executed on Base and periodically submitted to Ethereum Layer 1 in batches. As the cost of a Layer-1 submission is shared among multiple Layer-2 transactions, the average transaction cost per transaction may be lower than executing the same transactions directly on Ethereum Layer 1. The integrity of withdrawals from Base is supported by a fault-proof mechanism. Withdrawals are subject to a dispute period during which participants may challenge incorrect state commitments. The

dispute process incorporates economic incentives intended to encourage honest behaviour and discourage invalid claims.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) base is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Infinity Ground

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Infinity Ground	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	2.46188	kWh/a

Qualitative information

S.4 Consensus Mechanism

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

S.5 Incentive Mechanisms and Applicable Fees

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that

proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) `binance_smart_chain` is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Sonic SVM

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Sonic SVM	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	2.39765	kWh/a

Qualitative information

S.4 Consensus Mechanism

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):
 - Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
 - Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.
2. Proof of Stake (PoS):
 - Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
 - Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.

- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.
- 2. Delegators:
 - Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.
- 3. Economic Security:
 - Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
 - Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.
2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.
3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.
4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Apu Apustajasee

APU | /

Quantitative information

Quantitative sustainability indicators for Apu Apustajasee

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Apu Apustajasee	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	2.33985	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Solayer

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Solayer	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	2.31904	kWh/a

Qualitative information

S.4 Consensus Mechanism

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):
 - Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
 - Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.
2. Proof of Stake (PoS):
 - Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
 - Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.

- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.
- 2. Delegators:
 - Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.
- 3. Economic Security:
 - Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
 - Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.
2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.
3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.
4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Saber

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Saber	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	2.29782	kWh/a

Qualitative information

S.4 Consensus Mechanism

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):
 - Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
 - Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.
2. Proof of Stake (PoS):
 - Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
 - Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.

- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.
- 2. Delegators:
 - Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.
- 3. Economic Security:
 - Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
 - Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.
2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.
3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.
4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.


Gari

GARI | 3F283FQ8S

Quantitative information

Quantitative sustainability indicators for Gari

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Gari	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	2.29720	kWh/a

Qualitative information

S.4 Consensus Mechanism

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.

- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.
- 2. Delegators:
 - Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.
- 3. Economic Security:
 - Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
 - Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.
2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.
3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.
4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Swipe

SXP | J82048MMV

Quantitative information

Quantitative sustainability indicators for Swipe

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Swipe	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	2.28942	kWh/a

Qualitative information

S.4 Consensus Mechanism

Swipe is present on the following networks: Binance Smart Chain, Ethereum, Solana.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon

Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Swipe is present on the following networks: Binance Smart Chain, Ethereum, Solana.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.
- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.

2. Delegators:

- Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.

3. Economic Security:

- Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
- Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties. Fees Applicable on the Solana Blockchain

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.

2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.

3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.

4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) binance_smart_chain, ethereum, solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for StabLR Euro

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	StabLR Euro	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	2.26894	kWh/a

Qualitative information

S.4 Consensus Mechanism

StabLR Euro is present on the following networks: Concordium, Ethereum, Solana.

Concordium is a public and permissionless blockchain that employs a Layered Proof-of-Stake (PoS) consensus mechanism combined with a Byzantine Fault Tolerance (BFT) protocol for enhanced security and finality.

Core Components:

1. Layered PoS Structure:

- Proof-of-Stake for Block Production: Concordium uses PoS where users, known as validators, stake their tokens to participate in block creation and validation. Each validator's chances of being selected as the block producer (leader) depend on their staked amount, promoting fair participation.
- Two-Layer Structure: Concordium separates block production and finalization into two distinct layers to increase security and reduce forks:
 - Block Production Layer: Responsible for creating new blocks and proposing them to the network.
 - Finalization Layer: Ensures blocks are finalized using a BFT protocol, making them irreversible once confirmed.

2. Finalization Layer (BFT Protocol):

- Byzantine Fault Tolerance: The finalization layer uses a BFT protocol to validate and finalize blocks, ensuring they cannot be altered once added. This layer provides extra security by minimizing the potential for forks, as finalized blocks are definitive.
- Finalization Committee: A subset of bakers (validators) is chosen as the finalization committee, whose members, known as finalizers, handle the finalization of blocks. This guarantees that confirmed blocks achieve consensus and permanence.

3. Identity-Based Anonymity:

- Identity Verification: Concordium introduces an identity layer that verifies participant identities while maintaining user anonymity. This approach balances regulatory compliance and privacy, ensuring participants are pseudonymous but verifiable.
- Sybil Attack Resistance: The combination of PoS and identity verification reduces the risk of Sybil attacks, as participants must have verified identities to contribute to consensus.

4. Leader Selection and Epochs:

- Leader Selection: In each epoch, a specific baker (validator) is chosen as the leader, responsible for producing blocks. Leader selection uses a random nonce to ensure fairness and unpredictability.
- Epochs: Each epoch lasts one hour, with fixed bakers for the duration. Leader selection within the epoch is based on each baker's relative stake, providing proportional chances for leader selection.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.

- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

StabLR Euro is present on the following networks: Concordium, Ethereum, Solana.

Concordium incentivizes network security, participation, and governance through staking rewards, transaction fees, and a dynamic minting model.

Incentive Mechanisms:

1. Validator Rewards:

- Transaction Fees and Staking Rewards: Validators who contribute to block creation and verification receive transaction fees and staking rewards. This incentivizes validators to uphold network security and stability.
- Baker and Finalizer Rewards: Concordium distributes rewards between bakers (validators creating blocks) and finalizers (validators finalizing blocks). Bakers receive the majority of rewards for their role in block production.

2. Staking Rewards:

- Proportional Rewards: Validators earn rewards based on the size of their stake, encouraging users to participate in staking and network activities. The more CCD tokens staked, the higher the staking reward.
- Governance Participation: By staking, users gain influence in network governance, including protocol upgrades and policy changes. This mechanism aligns validators' interests with the platform's long-term goals.

3. Minting Process and Distribution:

- Daily Minting of CCD Tokens: Concordium mints new CCD tokens daily. This minting rate is governed by preset parameters to control the supply of CCD and ensure a sustainable ecosystem.
- Distribution Model: 10% of newly minted CCD is allocated to the Concordium Foundation as a Platform Development Charge to support development.
- 90% is divided as follows: Baker Rewards: 85% of the 90% is allocated to bakers for their role in block production. Finalizer Rewards: 5% of the 90% is allocated to finalizers, incentivizing their contribution to securing block finality.

Applicable Fees:

- Transaction fees on Concordium vary based on network demand and capacity, adjusting dynamically to ensure sustainable operations.
- Revenue for Validators: Collected fees are used to compensate validators, motivating them to process transactions accurately and efficiently.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.
- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.

2. Delegators:

- Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.

3. Economic Security:

- Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
- Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Fees Applicable on the Solana Blockchain

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.

2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.

3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.

4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) concordium, ethereum, solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of

participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for NodeOps

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	NodeOps	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	2.24578	kWh/a

Qualitative information

S.4 Consensus Mechanism

NodeOps is present on the following networks: Arbitrum, Binance Smart Chain, Ethereum.

Arbitrum is an optimistic rollup that processes transactions on a Layer 2 network and relies on Ethereum for data availability and settlement. A sequencer orders incoming transactions, executes them and publishes compressed transaction batches to Ethereum. Arbitrum nodes can independently reconstruct and verify the resulting Layer 2 state using the transaction data published on the parent chain. Validators submit assertions representing the state of the network. Under the BoLD dispute protocol, conflicting or incorrect assertions may be challenged and resolved through an interactive fraud-proof process on Ethereum. Once an assertion has been confirmed and the applicable challenge process has been completed, the corresponding Layer 2 state is accepted for settlement purposes.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 "Cabinet" validators and 24 "Candidate" validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes

that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

NodeOps is present on the following networks: Arbitrum, Binance Smart Chain, Ethereum.

Transactions on Arbitrum are subject to fees paid in ETH. The total fee generally consists of a Layer 2 execution component, which covers the computational resources required to process the transaction, and a parent-chain data component, which reflects the cost of publishing compressed transaction data to Ethereum. The amount payable therefore depends on the computational complexity of the transaction, the volume and compressibility of its data and the prevailing cost of data publication on Ethereum. Participants that submit or challenge state assertions under the dispute protocol must provide economic bonds. These bonds are intended to discourage incorrect assertions and compensate successful participants in the dispute process. Withdrawals through the canonical bridge become executable after the relevant Layer 2 state has been confirmed and the applicable challenge period has elapsed.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support

reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) arbitrum, binance_smart_chain, ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Cookie DAO

COOKIE | DBRTW3FF8

Quantitative information

Quantitative sustainability indicators for Cookie DAO

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Cookie DAO	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	2.23923	kWh/a

Qualitative information

S.4 Consensus Mechanism

Cookie DAO is present on the following networks: Base, Binance Smart Chain.

Base does not operate its own consensus mechanism or decentralised validator set comparable to a Layer-1 blockchain. As an optimistic rollup Layer-2 network, Base relies on Ethereum's Proof-of-Stake consensus for the finality and settlement of data and state commitments posted to Ethereum Layer 1. Transaction ordering on Base is performed by a sequencer, currently operated by Coinbase. This sequencing function provides transaction ordering and execution on the Layer-2 network but does not constitute a decentralised consensus mechanism. The validity of Layer-2 state transitions is supported by an optimistic fault-proof mechanism, under which incorrect state commitments may be challenged during the applicable dispute period. Accordingly, Base's security model depends on Ethereum Layer 1 for settlement and finality, while Layer-2 transaction ordering remains dependent on the sequencer.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 "Cabinet" validators and 24 "Candidate" validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by

validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

S.5 Incentive Mechanisms and Applicable Fees

Cookie DAO is present on the following networks: Base, Binance Smart Chain.

Base does not have a native protocol token and does not operate a staking, validator reward or token issuance mechanism. Transaction fees on Base are paid in ETH. The economic incentives within the network are primarily related to transaction processing and network security. Transactions are executed on Base and periodically submitted to Ethereum Layer 1 in batches. As the cost of a Layer-1 submission is shared among multiple Layer-2 transactions, the average transaction cost per transaction may be lower than executing the same transactions directly on Ethereum Layer 1. The integrity of withdrawals from Base is supported by a fault-proof mechanism. Withdrawals are subject to a dispute period during which participants may challenge incorrect state commitments. The dispute process incorporates economic incentives intended to encourage honest behaviour and discourage invalid claims.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) base, binance_smart_chain is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Loaded Lions

LIONS | QW6T8C2WG

Quantitative information

Quantitative sustainability indicators for Loaded Lions

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Loaded Lions	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	2.19508	kWh/a

Qualitative information

S.4 Consensus Mechanism

Loaded Lions is present on the following networks: Arbitrum, Cronos, Solana.

Arbitrum is an optimistic rollup that processes transactions on a Layer 2 network and relies on Ethereum for data availability and settlement. A sequencer orders incoming transactions, executes them and publishes compressed transaction batches to Ethereum. Arbitrum nodes can independently reconstruct and verify the resulting Layer 2 state using the transaction data published on the parent chain. Validators submit assertions representing the state of the network. Under the BoLD dispute protocol, conflicting or incorrect assertions may be challenged and resolved through an interactive fraud-proof process on Ethereum. Once an assertion has been confirmed and the applicable challenge process has been completed, the corresponding Layer 2 state is accepted for settlement purposes.

Cronos operates on a Proof of Stake (PoS) model integrated with Tendermint's Byzantine Fault Tolerant (BFT) consensus, designed for decentralization, security, and interoperability. This model enables validators to be selected based on staking power, rewarding them for securing and validating the network.

Core Components:

- Proof of Stake (PoS) with Tendermint BFT Validator Selection: Validators are chosen based on the amount of CRO tokens staked, securing the network and producing blocks.

- Delegation Model: Token holders can delegate their CRO to validators, enabling participation in network security without needing to run a validator node.
- Cosmos SDK and Inter-Blockchain Communication (IBC) Cross-Chain Connectivity: Built on the Cosmos SDK, Cronos enables cross-chain communication, connecting to other Cosmos blockchains and ecosystems such as Ethereum and Binance Smart Chain.

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Loaded Lions is present on the following networks: Arbitrum, Cronos, Solana.

Transactions on Arbitrum are subject to fees paid in ETH. The total fee generally consists of a Layer 2 execution component, which covers the computational resources required to process the transaction, and a parent-chain data component, which reflects the cost of publishing compressed transaction data to Ethereum. The amount payable therefore depends on the computational complexity of the transaction, the volume and compressibility of its data and the prevailing cost of data publication on Ethereum. Participants that submit or challenge state assertions under the dispute protocol must provide economic bonds. These bonds are intended to discourage incorrect assertions and compensate successful participants in the dispute process. Withdrawals through the canonical bridge become executable after the relevant Layer 2 state has been confirmed and the applicable challenge period has elapsed.

Cronos incentivizes validators and delegators with staking rewards and transaction fees, aligning economic incentives with network security and growth.

Incentive Mechanisms:

- Staking Rewards Validators and Delegators: Both groups earn CRO rewards for supporting network security. Delegators earn a portion of the validator rewards, promoting broader network participation.
- Deflationary Mechanism Token Burning: A portion of transaction fees and staking rewards may be periodically burned, reducing CRO supply over time and potentially increasing token value.

Applicable Fees:

- Transaction and Smart Contract Fees Standard Transactions: Users pay CRO for network transactions and dApp interactions, providing a steady income for validators.
- Ethereum-Compatible Gas Fees: Executing Ethereum-compatible smart contracts incurs gas fees, similar to Ethereum, payable in CRO.

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more

tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.

- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.

2. Delegators:

- Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.

3. Economic Security:

- Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
- Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Fees Applicable on the Solana Blockchain

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.

2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.

3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.

4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) arbitrum, cronos, solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.


Oobit

OOB | J4L4TPV1F

Quantitative information

Quantitative sustainability indicators for Oobit

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Oobit	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	1.81742	kWh/a

Qualitative information

S.4 Consensus Mechanism

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.

- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.
- 2. Delegators:
 - Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.
- 3. Economic Security:
 - Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
 - Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Transaction Fees:

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Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.
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Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.
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State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.
4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Nobody Sausage

NOBODY | Q2BLJNF8

Quantitative information

Quantitative sustainability indicators for Nobody Sausage

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Nobody Sausage	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	1.77874	kWh/a

Qualitative information

S.4 Consensus Mechanism

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.

- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.
- 2. Delegators:
 - Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.
- 3. Economic Security:
 - Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
 - Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.
2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.
3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.
4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for RollX

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	RollX	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	1.76152	kWh/a

Qualitative information

S.4 Consensus Mechanism

Base does not operate its own consensus mechanism or decentralised validator set comparable to a Layer-1 blockchain. As an optimistic rollup Layer-2 network, Base relies on Ethereum's Proof-of-Stake consensus for the finality and settlement of data and state commitments posted to Ethereum Layer 1. Transaction ordering on Base is performed by a sequencer, currently operated by Coinbase. This sequencing function provides transaction ordering and execution on the Layer-2 network but does not constitute a decentralised consensus mechanism. The validity of Layer-2 state transitions is supported by an optimistic fault-proof mechanism, under which incorrect state commitments may be challenged during the applicable dispute period. Accordingly, Base's security model depends on Ethereum Layer 1 for settlement and finality, while Layer-2 transaction ordering remains dependent on the sequencer.

S.5 Incentive Mechanisms and Applicable Fees

Base does not have a native protocol token and does not operate a staking, validator reward or token issuance mechanism. Transaction fees on Base are paid in ETH. The economic incentives within the network are primarily related to transaction processing and network security. Transactions are executed on Base and periodically submitted to Ethereum Layer 1 in batches. As the cost of a Layer-1 submission is shared among multiple Layer-2 transactions, the average transaction cost per transaction may be lower than executing the same transactions directly on Ethereum Layer 1. The integrity of withdrawals from Base is supported by a fault-proof mechanism. Withdrawals are subject to a dispute period during which participants may challenge incorrect state commitments. The

dispute process incorporates economic incentives intended to encourage honest behaviour and discourage invalid claims.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) base is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.


REPO

REPO | WLTC7T1M9

Quantitative information

Quantitative sustainability indicators for REPO

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	REPO	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	1.71339	kWh/a

Qualitative information

S.4 Consensus Mechanism

Base does not operate its own consensus mechanism or decentralised validator set comparable to a Layer-1 blockchain. As an optimistic rollup Layer-2 network, Base relies on Ethereum's Proof-of-Stake consensus for the finality and settlement of data and state commitments posted to Ethereum Layer 1. Transaction ordering on Base is performed by a sequencer, currently operated by Coinbase. This sequencing function provides transaction ordering and execution on the Layer-2 network but does not constitute a decentralised consensus mechanism. The validity of Layer-2 state transitions is supported by an optimistic fault-proof mechanism, under which incorrect state commitments may be challenged during the applicable dispute period. Accordingly, Base's security model depends on Ethereum Layer 1 for settlement and finality, while Layer-2 transaction ordering remains dependent on the sequencer.

S.5 Incentive Mechanisms and Applicable Fees

Base does not have a native protocol token and does not operate a staking, validator reward or token issuance mechanism. Transaction fees on Base are paid in ETH. The economic incentives within the network are primarily related to transaction processing and network security. Transactions are executed on Base and periodically submitted to Ethereum Layer 1 in batches. As the cost of a Layer-1 submission is shared among multiple Layer-2 transactions, the average transaction cost per transaction may be lower than executing the same transactions directly on Ethereum Layer 1. The integrity of withdrawals from Base is supported by a fault-proof mechanism. Withdrawals are subject to a dispute period during which participants may challenge incorrect state commitments. The

dispute process incorporates economic incentives intended to encourage honest behaviour and discourage invalid claims.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) base is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Sapien

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Sapien	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	1.65477	kWh/a

Qualitative information

S.4 Consensus Mechanism

Base does not operate its own consensus mechanism or decentralised validator set comparable to a Layer-1 blockchain. As an optimistic rollup Layer-2 network, Base relies on Ethereum's Proof-of-Stake consensus for the finality and settlement of data and state commitments posted to Ethereum Layer 1. Transaction ordering on Base is performed by a sequencer, currently operated by Coinbase. This sequencing function provides transaction ordering and execution on the Layer-2 network but does not constitute a decentralised consensus mechanism. The validity of Layer-2 state transitions is supported by an optimistic fault-proof mechanism, under which incorrect state commitments may be challenged during the applicable dispute period. Accordingly, Base's security model depends on Ethereum Layer 1 for settlement and finality, while Layer-2 transaction ordering remains dependent on the sequencer.

S.5 Incentive Mechanisms and Applicable Fees

Base does not have a native protocol token and does not operate a staking, validator reward or token issuance mechanism. Transaction fees on Base are paid in ETH. The economic incentives within the network are primarily related to transaction processing and network security. Transactions are executed on Base and periodically submitted to Ethereum Layer 1 in batches. As the cost of a Layer-1 submission is shared among multiple Layer-2 transactions, the average transaction cost per transaction may be lower than executing the same transactions directly on Ethereum Layer 1. The integrity of withdrawals from Base is supported by a fault-proof mechanism. Withdrawals are subject to a dispute period during which participants may challenge incorrect state commitments. The

dispute process incorporates economic incentives intended to encourage honest behaviour and discourage invalid claims.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) base is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Superform

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Superform	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	1.63634	kWh/a

Qualitative information

S.4 Consensus Mechanism

Base does not operate its own consensus mechanism or decentralised validator set comparable to a Layer-1 blockchain. As an optimistic rollup Layer-2 network, Base relies on Ethereum's Proof-of-Stake consensus for the finality and settlement of data and state commitments posted to Ethereum Layer 1. Transaction ordering on Base is performed by a sequencer, currently operated by Coinbase. This sequencing function provides transaction ordering and execution on the Layer-2 network but does not constitute a decentralised consensus mechanism. The validity of Layer-2 state transitions is supported by an optimistic fault-proof mechanism, under which incorrect state commitments may be challenged during the applicable dispute period. Accordingly, Base's security model depends on Ethereum Layer 1 for settlement and finality, while Layer-2 transaction ordering remains dependent on the sequencer.

S.5 Incentive Mechanisms and Applicable Fees

Base does not have a native protocol token and does not operate a staking, validator reward or token issuance mechanism. Transaction fees on Base are paid in ETH. The economic incentives within the network are primarily related to transaction processing and network security. Transactions are executed on Base and periodically submitted to Ethereum Layer 1 in batches. As the cost of a Layer-1 submission is shared among multiple Layer-2 transactions, the average transaction cost per transaction may be lower than executing the same transactions directly on Ethereum Layer 1. The integrity of withdrawals from Base is supported by a fault-proof mechanism. Withdrawals are subject to a dispute period during which participants may challenge incorrect state commitments. The

dispute process incorporates economic incentives intended to encourage honest behaviour and discourage invalid claims.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) base is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Sport.Fun

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Sport.Fun	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	1.56211	kWh/a

Qualitative information

S.4 Consensus Mechanism

Base does not operate its own consensus mechanism or decentralised validator set comparable to a Layer-1 blockchain. As an optimistic rollup Layer-2 network, Base relies on Ethereum's Proof-of-Stake consensus for the finality and settlement of data and state commitments posted to Ethereum Layer 1. Transaction ordering on Base is performed by a sequencer, currently operated by Coinbase. This sequencing function provides transaction ordering and execution on the Layer-2 network but does not constitute a decentralised consensus mechanism. The validity of Layer-2 state transitions is supported by an optimistic fault-proof mechanism, under which incorrect state commitments may be challenged during the applicable dispute period. Accordingly, Base's security model depends on Ethereum Layer 1 for settlement and finality, while Layer-2 transaction ordering remains dependent on the sequencer.

S.5 Incentive Mechanisms and Applicable Fees

Base does not have a native protocol token and does not operate a staking, validator reward or token issuance mechanism. Transaction fees on Base are paid in ETH. The economic incentives within the network are primarily related to transaction processing and network security. Transactions are executed on Base and periodically submitted to Ethereum Layer 1 in batches. As the cost of a Layer-1 submission is shared among multiple Layer-2 transactions, the average transaction cost per transaction may be lower than executing the same transactions directly on Ethereum Layer 1. The integrity of withdrawals from Base is supported by a fault-proof mechanism. Withdrawals are subject to a dispute period during which participants may challenge incorrect state commitments. The

dispute process incorporates economic incentives intended to encourage honest behaviour and discourage invalid claims.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) base is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Edge

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Edge	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	1.54098	kWh/a

Qualitative information

S.4 Consensus Mechanism

Base does not operate its own consensus mechanism or decentralised validator set comparable to a Layer-1 blockchain. As an optimistic rollup Layer-2 network, Base relies on Ethereum's Proof-of-Stake consensus for the finality and settlement of data and state commitments posted to Ethereum Layer 1. Transaction ordering on Base is performed by a sequencer, currently operated by Coinbase. This sequencing function provides transaction ordering and execution on the Layer-2 network but does not constitute a decentralised consensus mechanism. The validity of Layer-2 state transitions is supported by an optimistic fault-proof mechanism, under which incorrect state commitments may be challenged during the applicable dispute period. Accordingly, Base's security model depends on Ethereum Layer 1 for settlement and finality, while Layer-2 transaction ordering remains dependent on the sequencer.

S.5 Incentive Mechanisms and Applicable Fees

Base does not have a native protocol token and does not operate a staking, validator reward or token issuance mechanism. Transaction fees on Base are paid in ETH. The economic incentives within the network are primarily related to transaction processing and network security. Transactions are executed on Base and periodically submitted to Ethereum Layer 1 in batches. As the cost of a Layer-1 submission is shared among multiple Layer-2 transactions, the average transaction cost per transaction may be lower than executing the same transactions directly on Ethereum Layer 1. The integrity of withdrawals from Base is supported by a fault-proof mechanism. Withdrawals are subject to a dispute period during which participants may challenge incorrect state commitments. The

dispute process incorporates economic incentives intended to encourage honest behaviour and discourage invalid claims.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) base is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Alkimi

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Alkimi	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	1.34718	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for idos

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	idos	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	1.30208	kWh/a

Qualitative information

S.4 Consensus Mechanism

Arbitrum is an optimistic rollup that processes transactions on a Layer 2 network and relies on Ethereum for data availability and settlement. A sequencer orders incoming transactions, executes them and publishes compressed transaction batches to Ethereum. Arbitrum nodes can independently reconstruct and verify the resulting Layer 2 state using the transaction data published on the parent chain. Validators submit assertions representing the state of the network. Under the BoLD dispute protocol, conflicting or incorrect assertions may be challenged and resolved through an interactive fraud-proof process on Ethereum. Once an assertion has been confirmed and the applicable challenge process has been completed, the corresponding Layer 2 state is accepted for settlement purposes.

S.5 Incentive Mechanisms and Applicable Fees

Transactions on Arbitrum are subject to fees paid in ETH. The total fee generally consists of a Layer 2 execution component, which covers the computational resources required to process the transaction, and a parent-chain data component, which reflects the cost of publishing compressed transaction data to Ethereum. The amount payable therefore depends on the computational complexity of the transaction, the volume and compressibility of its data and the prevailing cost of data publication on Ethereum. Participants that submit or challenge state assertions under the dispute protocol must provide economic bonds. These bonds are intended to discourage incorrect assertions and compensate successful participants in the dispute process. Withdrawals through the

canonical bridge become executable after the relevant Layer 2 state has been confirmed and the applicable challenge period has elapsed.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) arbitrum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Elixir

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Elixir	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	1.27628	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.


375ai

EAT | 8R2R6HDFB

Quantitative information

Quantitative sustainability indicators for 375ai

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	375ai	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	1.23595	kWh/a

Qualitative information

S.4 Consensus Mechanism

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.

- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.
- 2. Delegators:
 - Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.
- 3. Economic Security:
 - Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
 - Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.
2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.
3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.
4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Soma Finance

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Soma Finance	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	1.20537	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Eva AI

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Eva AI	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	1.13447	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for RIZE

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	RIZE	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	1.09446	kWh/a

Qualitative information

S.4 Consensus Mechanism

Base does not operate its own consensus mechanism or decentralised validator set comparable to a Layer-1 blockchain. As an optimistic rollup Layer-2 network, Base relies on Ethereum's Proof-of-Stake consensus for the finality and settlement of data and state commitments posted to Ethereum Layer 1. Transaction ordering on Base is performed by a sequencer, currently operated by Coinbase. This sequencing function provides transaction ordering and execution on the Layer-2 network but does not constitute a decentralised consensus mechanism. The validity of Layer-2 state transitions is supported by an optimistic fault-proof mechanism, under which incorrect state commitments may be challenged during the applicable dispute period. Accordingly, Base's security model depends on Ethereum Layer 1 for settlement and finality, while Layer-2 transaction ordering remains dependent on the sequencer.

S.5 Incentive Mechanisms and Applicable Fees

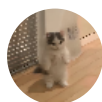
Base does not have a native protocol token and does not operate a staking, validator reward or token issuance mechanism. Transaction fees on Base are paid in ETH. The economic incentives within the network are primarily related to transaction processing and network security. Transactions are executed on Base and periodically submitted to Ethereum Layer 1 in batches. As the cost of a Layer-1 submission is shared among multiple Layer-2 transactions, the average transaction cost per transaction may be lower than executing the same transactions directly on Ethereum Layer 1. The integrity of withdrawals from Base is supported by a fault-proof mechanism. Withdrawals are subject to a dispute period during which participants may challenge incorrect state commitments. The

dispute process incorporates economic incentives intended to encourage honest behaviour and discourage invalid claims.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) base is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



michi (SOL)

MICH | /

Quantitative information

Quantitative sustainability indicators for michi (SOL)

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	michi (SOL)	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	0.99387	kWh/a

Qualitative information

S.4 Consensus Mechanism

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.

- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.
- 2. Delegators:
 - Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.
- 3. Economic Security:
 - Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
 - Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.
2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.
3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.
4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Giza

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Giza	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	0.99266	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Sogni AI

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Sogni AI	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	0.90375	kWh/a

Qualitative information

S.4 Consensus Mechanism

Base does not operate its own consensus mechanism or decentralised validator set comparable to a Layer-1 blockchain. As an optimistic rollup Layer-2 network, Base relies on Ethereum's Proof-of-Stake consensus for the finality and settlement of data and state commitments posted to Ethereum Layer 1. Transaction ordering on Base is performed by a sequencer, currently operated by Coinbase. This sequencing function provides transaction ordering and execution on the Layer-2 network but does not constitute a decentralised consensus mechanism. The validity of Layer-2 state transitions is supported by an optimistic fault-proof mechanism, under which incorrect state commitments may be challenged during the applicable dispute period. Accordingly, Base's security model depends on Ethereum Layer 1 for settlement and finality, while Layer-2 transaction ordering remains dependent on the sequencer.

S.5 Incentive Mechanisms and Applicable Fees

Base does not have a native protocol token and does not operate a staking, validator reward or token issuance mechanism. Transaction fees on Base are paid in ETH. The economic incentives within the network are primarily related to transaction processing and network security. Transactions are executed on Base and periodically submitted to Ethereum Layer 1 in batches. As the cost of a Layer-1 submission is shared among multiple Layer-2 transactions, the average transaction cost per transaction may be lower than executing the same transactions directly on Ethereum Layer 1. The integrity of withdrawals from Base is supported by a fault-proof mechanism. Withdrawals are subject to a dispute period during which participants may challenge incorrect state commitments. The

dispute process incorporates economic incentives intended to encourage honest behaviour and discourage invalid claims.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) base is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Solv Protocol

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Solv Protocol	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	0.88225	kWh/a

Qualitative information

S.4 Consensus Mechanism

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

S.5 Incentive Mechanisms and Applicable Fees

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that

proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) `binance_smart_chain` is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Kula

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Kula	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	0.86520	kWh/a

Qualitative information

S.4 Consensus Mechanism

The Avalanche C-Chain uses the Snowman++ consensus mechanism, which is Avalanche’s consensus model for linear blockchains and is implemented through the ProposerVM wrapper. Under this model, validators repeatedly query a small random subset of other validators and converge on a preferred block once the required confidence thresholds are met. Only Primary Network validators are entitled to validate the C-Chain. To participate as a validator on Avalanche mainnet, a node must stake a minimum number of token. Token holders may also participate indirectly by delegating an existing validator. Validator identity and admission to staking require the relevant staking credentials, including BLS proofs of possession under the current staking framework. For block production, Snowman++ uses stake-weighted proposer windows. Through the ProposerVM, block-building opportunities are assigned to proposers in 5-second windows, after which block production may fall back more broadly to validators if necessary. This mechanism is intended to regulate block production while preserving network liveness. Consensus voting itself remains based on repeated sub-sampled polling rather than fixed validator committees. Avalanche documentation describes the finality model as sub-second and treated by the protocol as final and irreversible once accepted, while noting that safety is probabilistic in the formal sense because the probability of conflicting acceptance can be reduced to an arbitrarily low level through the protocol parameters. The protocol does not rely on slashing of staked principal. Instead, validator reward eligibility depends on compliance with protocol conditions, including uptime requirements.

S.5 Incentive Mechanisms and Applicable Fees

The Avalanche C-Chain is secured economically through the native AVAX token. Validator incentives are based primarily on staking rewards, not on redistribution of C-Chain transaction fees. A fixed amount of 360 million AVAX was minted at genesis, while additional AVAX is minted over time as validator rewards, subject to Avalanche's capped token supply framework. Validator rewards are paid at the end of the staking period and are determined by factors such as the validator's stake and compliance with staking conditions. Unlike some proof-of-stake systems, the Avalanche Primary Network does not use slashing of bonded principal as an ordinary penalty mechanism. Instead, the main protocol-level economic consequence for underperformance is the loss of reward eligibility. Where a validator fails to satisfy the applicable uptime requirement during its staking term, that validator does not receive the corresponding staking reward. Transaction fees apply on the C-Chain for transfers and smart-contract execution. The fee model follows EIP-1559 logic, meaning that transactions are priced through a dynamic base fee mechanism. In contrast to Ethereum's validator tip model, C-Chain transaction fees are burned rather than distributed to validators. This means that C-Chain fees function as a supply-reduction mechanism and are intended in part to offset inflation arising from the minting of validator rewards. In addition to ordinary transaction and smart-contract execution fees, Avalanche documentation also recognises protocol fees in connection with other network operations on other chains of the Primary Network, such as certain import or export operations and staking-related actions. However, for the C-Chain itself, the core applicable fee category is the gas fee for transaction inclusion and contract execution, and those fees are handled through the protocol burn mechanism rather than paid to validators or a treasury.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) avalanche is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for AUKI

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	AUKI	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	0.86219	kWh/a

Qualitative information

S.4 Consensus Mechanism

Base does not operate its own consensus mechanism or decentralised validator set comparable to a Layer-1 blockchain. As an optimistic rollup Layer-2 network, Base relies on Ethereum's Proof-of-Stake consensus for the finality and settlement of data and state commitments posted to Ethereum Layer 1. Transaction ordering on Base is performed by a sequencer, currently operated by Coinbase. This sequencing function provides transaction ordering and execution on the Layer-2 network but does not constitute a decentralised consensus mechanism. The validity of Layer-2 state transitions is supported by an optimistic fault-proof mechanism, under which incorrect state commitments may be challenged during the applicable dispute period. Accordingly, Base's security model depends on Ethereum Layer 1 for settlement and finality, while Layer-2 transaction ordering remains dependent on the sequencer.

S.5 Incentive Mechanisms and Applicable Fees

Base does not have a native protocol token and does not operate a staking, validator reward or token issuance mechanism. Transaction fees on Base are paid in ETH. The economic incentives within the network are primarily related to transaction processing and network security. Transactions are executed on Base and periodically submitted to Ethereum Layer 1 in batches. As the cost of a Layer-1 submission is shared among multiple Layer-2 transactions, the average transaction cost per transaction may be lower than executing the same transactions directly on Ethereum Layer 1. The integrity of withdrawals from Base is supported by a fault-proof mechanism. Withdrawals are subject to a dispute period during which participants may challenge incorrect state commitments. The

dispute process incorporates economic incentives intended to encourage honest behaviour and discourage invalid claims.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) base is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Intuition

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Intuition	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	0.86163	kWh/a

Qualitative information

S.4 Consensus Mechanism

Base does not operate its own consensus mechanism or decentralised validator set comparable to a Layer-1 blockchain. As an optimistic rollup Layer-2 network, Base relies on Ethereum's Proof-of-Stake consensus for the finality and settlement of data and state commitments posted to Ethereum Layer 1. Transaction ordering on Base is performed by a sequencer, currently operated by Coinbase. This sequencing function provides transaction ordering and execution on the Layer-2 network but does not constitute a decentralised consensus mechanism. The validity of Layer-2 state transitions is supported by an optimistic fault-proof mechanism, under which incorrect state commitments may be challenged during the applicable dispute period. Accordingly, Base's security model depends on Ethereum Layer 1 for settlement and finality, while Layer-2 transaction ordering remains dependent on the sequencer.

S.5 Incentive Mechanisms and Applicable Fees

Base does not have a native protocol token and does not operate a staking, validator reward or token issuance mechanism. Transaction fees on Base are paid in ETH. The economic incentives within the network are primarily related to transaction processing and network security. Transactions are executed on Base and periodically submitted to Ethereum Layer 1 in batches. As the cost of a Layer-1 submission is shared among multiple Layer-2 transactions, the average transaction cost per transaction may be lower than executing the same transactions directly on Ethereum Layer 1. The integrity of withdrawals from Base is supported by a fault-proof mechanism. Withdrawals are subject to a dispute period during which participants may challenge incorrect state commitments. The

dispute process incorporates economic incentives intended to encourage honest behaviour and discourage invalid claims.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) base is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Astra Nova

RVV | /

Quantitative information

Quantitative sustainability indicators for Astra Nova

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Astra Nova	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	0.79236	kWh/a

Qualitative information

S.4 Consensus Mechanism

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

S.5 Incentive Mechanisms and Applicable Fees

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that

proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) `binance_smart_chain` is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Stool Prisondente

JAILSTOOL | /

Quantitative information

Quantitative sustainability indicators for Stool Prisondente

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Stool Prisondente	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	0.66570	kWh/a

Qualitative information

S.4 Consensus Mechanism

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):
 - Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
 - Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.
2. Proof of Stake (PoS):
 - Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
 - Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.

- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.
- 2. Delegators:
 - Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.
- 3. Economic Security:
 - Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
 - Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.
2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.
3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.
4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Gensokishi Metaver

MV | /

Quantitative information

Quantitative sustainability indicators for Gensokishi Metaver

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Gensokishi Metaver	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	0.63959	kWh/a

Qualitative information

S.4 Consensus Mechanism

Gensokishi Metaver is present on the following networks: Ethereum, Polygon.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

Polygon PoS is an EVM-compatible sidechain that operates with a Proof-of-Stake consensus mechanism and periodically submits checkpoints to the Ethereum mainnet. The network maintains its own validator set and processes transactions independently from Ethereum, while using Ethereum smart contracts for staking-related functions and checkpoint verification. Polygon PoS therefore uses Ethereum as a staking and checkpointing layer, but does not rely on Ethereum for full

transaction execution or transaction data availability. The Polygon-side architecture consists of two primary node layers. The Bor layer is responsible for transaction execution and block production. The Heimdall layer is responsible for validator coordination, staking-related monitoring, consensus, and checkpoint finalisation. Heimdall is based on Cosmos SDK and CometBFT and aggregates blocks produced by Bor into periodic Merkle-root checkpoints that are submitted to smart contracts on the Ethereum mainnet. Validators participate in the network by staking POL tokens. Token holders may delegate POL tokens to validators, contributing to the validator's effective stake and participating indirectly in network validation. Following the Rio upgrade, Polygon PoS uses a Validator-Elected Block Producer model. Under this model, validators elect the block producer or block producers for a span, rather than relying on the previous stake-weighted selection model for multiple block producers over shorter intervals. Block production and transaction execution are performed on the Bor layer, while Heimdall validators coordinate consensus and checkpoint finalisation. At regular intervals, Heimdall validators aggregate blocks into a Merkle root and submit the resulting checkpoint to Ethereum smart contracts. These checkpoints provide an additional verification layer and support cross-chain verification, including in the context of asset transfers between Polygon PoS and Ethereum. This design enables higher transaction throughput and lower transaction costs than the Ethereum mainnet, while maintaining a technical connection to Ethereum through staking contracts and periodic checkpointing. Polygon PoS should therefore be understood as an independent sidechain or commit-chain architecture, rather than a rollup that inherits full execution and data availability security from Ethereum.

S.5 Incentive Mechanisms and Applicable Fees

Gensokishi Metaver is present on the following networks: Ethereum, Polygon.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

Polygon PoS uses economic incentives to support validator participation, transaction processing, and network operation. Validators stake POL tokens and participate in block production, validation, voting, and checkpoint finalisation. Validators may receive rewards connected to their participation in the network, including rewards linked to validation activities and transaction-fee allocation, depending on the applicable protocol rules. Token holders who do not operate validator infrastructure may delegate POL tokens to validators. Delegators may receive a share of rewards attributable to the validator to whom they delegate, subject to the validator's commission and applicable protocol rules. Delegation increases the validator's effective stake and may affect its role in the validator set and related network processes. Following the Rio upgrade, Polygon PoS introduced a Validator-Elected Block Producer model, under which validators elect the block producer or block producers for a span. Publicly described protocol changes associated with this model also provide for redistribution of fees, including maximum extractable value-related fees where applicable, to non-producing validators under the relevant protocol design. This changes the incentive structure

from the previous model in which block production selection was more directly described by reference to stake-weighted producer selection. Polygon PoS includes protocol specifications for validator penalties, including slashing-related concepts. Transactions on Polygon PoS require payment of network fees in POL. Fees apply to ordinary token transfers, smart contract deployment, and smart contract interaction. The amount of fees may vary depending on network demand, transaction complexity, and computational resources required. Because Polygon PoS processes transactions independently from Ethereum, transaction fees are generally designed to be lower than equivalent activity on the Ethereum mainnet, although actual fees may change according to network conditions and protocol parameters.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum, polygon is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Merit Circle

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Merit Circle	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	0.63814	kWh/a

Qualitative information

S.4 Consensus Mechanism

Merit Circle is present on the following networks: Binance Smart Chain, Ethereum.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon

Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Merit Circle is present on the following networks: Binance Smart Chain, Ethereum.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to

slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) binance_smart_chain, ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for AB

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	AB	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	0.61649	kWh/a

Qualitative information

S.4 Consensus Mechanism

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

S.5 Incentive Mechanisms and Applicable Fees

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that

proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) `binance_smart_chain` is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Sidekick

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Sidekick	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	0.60799	kWh/a

Qualitative information

S.4 Consensus Mechanism

Sidekick is present on the following networks: Binance Smart Chain, Ethereum, Solana.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon

Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Sidekick is present on the following networks: Binance Smart Chain, Ethereum, Solana.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.
- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.

2. Delegators:

- Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.

3. Economic Security:

- Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
- Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties. Fees Applicable on the Solana Blockchain

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.

2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.

3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.

4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) binance_smart_chain, ethereum, solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Codatta

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Codatta	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	0.58207	kWh/a

Qualitative information

S.4 Consensus Mechanism

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

S.5 Incentive Mechanisms and Applicable Fees

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that

proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) `binance_smart_chain` is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for xMoney

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	xMoney	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	0.56724	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Abc Labs

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Abc Labs	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	0.56598	kWh/a

Qualitative information

S.4 Consensus Mechanism

Base does not operate its own consensus mechanism or decentralised validator set comparable to a Layer-1 blockchain. As an optimistic rollup Layer-2 network, Base relies on Ethereum's Proof-of-Stake consensus for the finality and settlement of data and state commitments posted to Ethereum Layer 1. Transaction ordering on Base is performed by a sequencer, currently operated by Coinbase. This sequencing function provides transaction ordering and execution on the Layer-2 network but does not constitute a decentralised consensus mechanism. The validity of Layer-2 state transitions is supported by an optimistic fault-proof mechanism, under which incorrect state commitments may be challenged during the applicable dispute period. Accordingly, Base's security model depends on Ethereum Layer 1 for settlement and finality, while Layer-2 transaction ordering remains dependent on the sequencer.

S.5 Incentive Mechanisms and Applicable Fees

Base does not have a native protocol token and does not operate a staking, validator reward or token issuance mechanism. Transaction fees on Base are paid in ETH. The economic incentives within the network are primarily related to transaction processing and network security. Transactions are executed on Base and periodically submitted to Ethereum Layer 1 in batches. As the cost of a Layer-1 submission is shared among multiple Layer-2 transactions, the average transaction cost per transaction may be lower than executing the same transactions directly on Ethereum Layer 1. The integrity of withdrawals from Base is supported by a fault-proof mechanism. Withdrawals are subject to a dispute period during which participants may challenge incorrect state commitments. The

dispute process incorporates economic incentives intended to encourage honest behaviour and discourage invalid claims.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) base is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



CF Large Cap Index

LCAP | /

Quantitative information

Quantitative sustainability indicators for CF Large Cap Index

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	CF Large Cap Index	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	0.56598	kWh/a

Qualitative information

S.4 Consensus Mechanism

Base does not operate its own consensus mechanism or decentralised validator set comparable to a Layer-1 blockchain. As an optimistic rollup Layer-2 network, Base relies on Ethereum's Proof-of-Stake consensus for the finality and settlement of data and state commitments posted to Ethereum Layer 1. Transaction ordering on Base is performed by a sequencer, currently operated by Coinbase. This sequencing function provides transaction ordering and execution on the Layer-2 network but does not constitute a decentralised consensus mechanism. The validity of Layer-2 state transitions is supported by an optimistic fault-proof mechanism, under which incorrect state commitments may be challenged during the applicable dispute period. Accordingly, Base's security model depends on Ethereum Layer 1 for settlement and finality, while Layer-2 transaction ordering remains dependent on the sequencer.

S.5 Incentive Mechanisms and Applicable Fees

Base does not have a native protocol token and does not operate a staking, validator reward or token issuance mechanism. Transaction fees on Base are paid in ETH. The economic incentives within the network are primarily related to transaction processing and network security. Transactions are executed on Base and periodically submitted to Ethereum Layer 1 in batches. As the cost of a Layer-1 submission is shared among multiple Layer-2 transactions, the average transaction cost per transaction may be lower than executing the same transactions directly on Ethereum Layer 1. The integrity of withdrawals from Base is supported by a fault-proof mechanism. Withdrawals are subject to a dispute period during which participants may challenge incorrect state commitments. The

dispute process incorporates economic incentives intended to encourage honest behaviour and discourage invalid claims.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) base is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Boost

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Boost	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	0.49633	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for CUDIS

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	CUDIS	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	0.48314	kWh/a

Qualitative information

S.4 Consensus Mechanism

CUDIS is present on the following networks: Binance Smart Chain, Solana.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

CUDIS is present on the following networks: Binance Smart Chain, Solana.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.
- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.

2. Delegators:

- Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.

3. Economic Security:

- Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
- Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.

2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.

3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.

4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) binance_smart_chain, solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Step Finance

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Step Finance	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	0.45482	kWh/a

Qualitative information

S.4 Consensus Mechanism

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):
 - Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
 - Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.
2. Proof of Stake (PoS):
 - Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
 - Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.

- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.
- 2. Delegators:
 - Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.
- 3. Economic Security:
 - Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
 - Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.
2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.
3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.
4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Rayls

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Rayls	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	0.43481	kWh/a

Qualitative information

S.4 Consensus Mechanism

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

S.5 Incentive Mechanisms and Applicable Fees

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that

proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) `binance_smart_chain` is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Term Finance

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Term Finance	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	0.42543	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Particle Network

PARTI | /

Quantitative information

Quantitative sustainability indicators for Particle Network

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Particle Network	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	0.35566	kWh/a

Qualitative information

S.4 Consensus Mechanism

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

S.5 Incentive Mechanisms and Applicable Fees

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that

proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) `binance_smart_chain` is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Xterio

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Xterio	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	0.35000	kWh/a

Qualitative information

S.4 Consensus Mechanism

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

S.5 Incentive Mechanisms and Applicable Fees

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that

proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) `binance_smart_chain` is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Mango

MNGO | 3DZBQXGQ9

Quantitative information

Quantitative sustainability indicators for Mango

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Mango	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	0.33316	kWh/a

Qualitative information

S.4 Consensus Mechanism

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.

- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.
- 2. Delegators:
 - Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.
- 3. Economic Security:
 - Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
 - Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.
2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.
3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.
4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



UXLINK Token

UXLINK | 2DJT1QH0L

Quantitative information

Quantitative sustainability indicators for UXLINK Token

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	UXLINK Token	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	0.31480	kWh/a

Qualitative information

S.4 Consensus Mechanism

UXLINK Token is present on the following networks: Arbitrum, Binance Smart Chain, Mantle, Toncoin.

Arbitrum is an optimistic rollup that processes transactions on a Layer 2 network and relies on Ethereum for data availability and settlement. A sequencer orders incoming transactions, executes them and publishes compressed transaction batches to Ethereum. Arbitrum nodes can independently reconstruct and verify the resulting Layer 2 state using the transaction data published on the parent chain. Validators submit assertions representing the state of the network. Under the BoLD dispute protocol, conflicting or incorrect assertions may be challenged and resolved through an interactive fraud-proof process on Ethereum. Once an assertion has been confirmed and the applicable challenge process has been completed, the corresponding Layer 2 state is accepted for settlement purposes.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 "Cabinet" validators and 24 "Candidate" validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes

that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Mantle is a Layer-2 rollup built on top of Ethereum, designed to leverage Ethereum's security and Proof-of-Stake (PoS) consensus without an independent consensus layer.

Core Components of Mantle's Consensus:

1. Ethereum PoS Inheritance:

Layer-2 Rollup Model: Mantle does not operate its own consensus mechanism; instead, it relies on Ethereum's PoS for transaction finalization and network security. As a rollup on Ethereum, Mantle inherits the security guarantees of Ethereum's established PoS model.

2. Rollup Type Options:

Optimistic Rollups or Zero-Knowledge Rollups: Depending on its configuration, Mantle may use either Optimistic Rollups or Zero-Knowledge Rollups (zk-Rollups) to batch transactions. These rollup methods allow Mantle to achieve efficient off-chain processing and on-chain finality by periodically committing transaction data to Ethereum's mainnet.

The Open Network uses a Proof-of-Stake (PoS) consensus mechanism based on the Catchain protocol. Validators stake GRAM to participate in block production, transaction validation, and network security. Catchain provides Byzantine Fault Tolerant (BFT) consensus across the network's sharded architecture, enabling multiple shardchains to process transactions in parallel while maintaining a consistent global state. Validators are selected and rotated periodically, and once consensus is reached, blocks achieve deterministic finality.

S.5 Incentive Mechanisms and Applicable Fees

UXLINK Token is present on the following networks: Arbitrum, Binance Smart Chain, Mantle, Toncoin.

Transactions on Arbitrum are subject to fees paid in ETH. The total fee generally consists of a Layer 2 execution component, which covers the computational resources required to process the transaction, and a parent-chain data component, which reflects the cost of publishing compressed transaction data to Ethereum. The amount payable therefore depends on the computational complexity of the transaction, the volume and compressibility of its data and the prevailing cost of data publication on Ethereum. Participants that submit or challenge state assertions under the dispute protocol must provide economic bonds. These bonds are intended to discourage incorrect assertions and compensate successful participants in the dispute process. Withdrawals through the canonical bridge become executable after the relevant Layer 2 state has been confirmed and the applicable challenge period has elapsed.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from

22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Mantle aims to reduce transaction fees for users by utilizing Ethereum compatibility, rollup technology, and transaction bundling, offering a cost-effective Layer-2 solution.

Incentive Mechanisms:

1. Gas Fee Model:

Ethereum Compatibility: Mantle is EVM-compatible, meaning it shares Ethereum's gas fee model. Transactions require users to pay fees in units of gas, with costs varying based on transaction complexity and computational demand.

2. Lower Transaction Costs:

- Off-Chain Processing with Bundling: By processing transactions off-chain and settling data on Ethereum only periodically, Mantle reduces individual transaction costs. This method results in significantly lower fees compared to the Ethereum mainnet.
- Economies of Scale: Through transaction bundling, Mantle can spread the cost of Ethereum's on-chain settlement across multiple transactions, allowing users to pay only a fraction of the gas fees they would incur directly on Ethereum.

Applicable Fees:

Layer-2 Gas Fees: While Mantle's gas fees are lower than those on Ethereum, they are still measured in units of gas and depend on transaction complexity. The fees reflect the cost of executing transactions in Mantle's Layer-2 environment while benefiting from reduced overall gas consumption due to batching.

The Open Network incentivizes network participation through staking rewards and transaction fees. Validators receive rewards for producing blocks, validating transactions, and maintaining network security, with rewards distributed according to their participation and stake. Transaction fees are paid in GRAM and vary depending on the computational resources required by a transaction. The protocol also applies penalties to validators that fail to meet their obligations or act maliciously, encouraging reliable network operation and honest participation.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) arbitrum, binance_smart_chain, mantle, toncoin is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Fidelity Digital Interest Token

FIDD | TN49KLP0X

Quantitative information

Quantitative sustainability indicators for Fidelity Digital Interest Token

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Fidelity Digital Interest Token	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	0.28362	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Virtua

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Virtua	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	0.28362	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.


beamable

BMB | /

Quantitative information

Quantitative sustainability indicators for beamable

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	beamable	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	0.23209	kWh/a

Qualitative information

S.4 Consensus Mechanism

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.

- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.
- 2. Delegators:
 - Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.
- 3. Economic Security:
 - Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
 - Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.
2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.
3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.
4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Odos

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Odos	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	0.22330	kWh/a

Qualitative information

S.4 Consensus Mechanism

Base does not operate its own consensus mechanism or decentralised validator set comparable to a Layer-1 blockchain. As an optimistic rollup Layer-2 network, Base relies on Ethereum's Proof-of-Stake consensus for the finality and settlement of data and state commitments posted to Ethereum Layer 1. Transaction ordering on Base is performed by a sequencer, currently operated by Coinbase. This sequencing function provides transaction ordering and execution on the Layer-2 network but does not constitute a decentralised consensus mechanism. The validity of Layer-2 state transitions is supported by an optimistic fault-proof mechanism, under which incorrect state commitments may be challenged during the applicable dispute period. Accordingly, Base's security model depends on Ethereum Layer 1 for settlement and finality, while Layer-2 transaction ordering remains dependent on the sequencer.

S.5 Incentive Mechanisms and Applicable Fees

Base does not have a native protocol token and does not operate a staking, validator reward or token issuance mechanism. Transaction fees on Base are paid in ETH. The economic incentives within the network are primarily related to transaction processing and network security. Transactions are executed on Base and periodically submitted to Ethereum Layer 1 in batches. As the cost of a Layer-1 submission is shared among multiple Layer-2 transactions, the average transaction cost per transaction may be lower than executing the same transactions directly on Ethereum Layer 1. The integrity of withdrawals from Base is supported by a fault-proof mechanism. Withdrawals are subject to a dispute period during which participants may challenge incorrect state commitments. The

dispute process incorporates economic incentives intended to encourage honest behaviour and discourage invalid claims.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) base is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.


FAI

FAI | 71ZS4MW47

Quantitative information

Quantitative sustainability indicators for FAI

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	FAI	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	0.22268	kWh/a

Qualitative information

S.4 Consensus Mechanism

Base does not operate its own consensus mechanism or decentralised validator set comparable to a Layer-1 blockchain. As an optimistic rollup Layer-2 network, Base relies on Ethereum's Proof-of-Stake consensus for the finality and settlement of data and state commitments posted to Ethereum Layer 1. Transaction ordering on Base is performed by a sequencer, currently operated by Coinbase. This sequencing function provides transaction ordering and execution on the Layer-2 network but does not constitute a decentralised consensus mechanism. The validity of Layer-2 state transitions is supported by an optimistic fault-proof mechanism, under which incorrect state commitments may be challenged during the applicable dispute period. Accordingly, Base's security model depends on Ethereum Layer 1 for settlement and finality, while Layer-2 transaction ordering remains dependent on the sequencer.

S.5 Incentive Mechanisms and Applicable Fees

Base does not have a native protocol token and does not operate a staking, validator reward or token issuance mechanism. Transaction fees on Base are paid in ETH. The economic incentives within the network are primarily related to transaction processing and network security. Transactions are executed on Base and periodically submitted to Ethereum Layer 1 in batches. As the cost of a Layer-1 submission is shared among multiple Layer-2 transactions, the average transaction cost per transaction may be lower than executing the same transactions directly on Ethereum Layer 1. The integrity of withdrawals from Base is supported by a fault-proof mechanism. Withdrawals are subject to a dispute period during which participants may challenge incorrect state commitments. The

dispute process incorporates economic incentives intended to encourage honest behaviour and discourage invalid claims.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) base is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Planck

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Planck	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	0.22002	kWh/a

Qualitative information

S.4 Consensus Mechanism

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

S.5 Incentive Mechanisms and Applicable Fees

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that

proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) `binance_smart_chain` is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Ghiblification

GHIBLI | /

Quantitative information

Quantitative sustainability indicators for Ghiblification

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Ghiblification	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	0.19279	kWh/a

Qualitative information

S.4 Consensus Mechanism

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):
 - Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
 - Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.
2. Proof of Stake (PoS):
 - Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
 - Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.

- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.
- 2. Delegators:
 - Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.
- 3. Economic Security:
 - Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
 - Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.
2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.
3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.
4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Yala Stablecoin

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Yala Stablecoin	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	0.14243	kWh/a

Qualitative information

S.4 Consensus Mechanism

Yala Stablecoin is present on the following networks: Ethereum, Solana.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Yala Stablecoin is present on the following networks: Ethereum, Solana.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.
- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.

2. Delegators:

- Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.

3. Economic Security:

- Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
- Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties. Fees Applicable on the Solana Blockchain

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.

2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.

3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.

4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum, solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for WorldMobileToken

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	WorldMobileToken	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	0.11379	kWh/a

Qualitative information

S.4 Consensus Mechanism

Base does not operate its own consensus mechanism or decentralised validator set comparable to a Layer-1 blockchain. As an optimistic rollup Layer-2 network, Base relies on Ethereum's Proof-of-Stake consensus for the finality and settlement of data and state commitments posted to Ethereum Layer 1. Transaction ordering on Base is performed by a sequencer, currently operated by Coinbase. This sequencing function provides transaction ordering and execution on the Layer-2 network but does not constitute a decentralised consensus mechanism. The validity of Layer-2 state transitions is supported by an optimistic fault-proof mechanism, under which incorrect state commitments may be challenged during the applicable dispute period. Accordingly, Base's security model depends on Ethereum Layer 1 for settlement and finality, while Layer-2 transaction ordering remains dependent on the sequencer.

S.5 Incentive Mechanisms and Applicable Fees

Base does not have a native protocol token and does not operate a staking, validator reward or token issuance mechanism. Transaction fees on Base are paid in ETH. The economic incentives within the network are primarily related to transaction processing and network security. Transactions are executed on Base and periodically submitted to Ethereum Layer 1 in batches. As the cost of a Layer-1 submission is shared among multiple Layer-2 transactions, the average transaction cost per transaction may be lower than executing the same transactions directly on Ethereum Layer 1. The integrity of withdrawals from Base is supported by a fault-proof mechanism. Withdrawals are subject to a dispute period during which participants may challenge incorrect state commitments. The

dispute process incorporates economic incentives intended to encourage honest behaviour and discourage invalid claims.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) base is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



GreenSatoshiToken

GST | PBSSTVTM0

Quantitative information

Quantitative sustainability indicators for GreenSatoshiToken

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	GreenSatoshiToken	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	0.11066	kWh/a

Qualitative information

S.4 Consensus Mechanism

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 "Cabinet" validators and 24 "Candidate" validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

S.5 Incentive Mechanisms and Applicable Fees

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that

proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) `binance_smart_chain` is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Syndicate

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Syndicate	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	0.08907	kWh/a

Qualitative information

S.4 Consensus Mechanism

Base does not operate its own consensus mechanism or decentralised validator set comparable to a Layer-1 blockchain. As an optimistic rollup Layer-2 network, Base relies on Ethereum's Proof-of-Stake consensus for the finality and settlement of data and state commitments posted to Ethereum Layer 1. Transaction ordering on Base is performed by a sequencer, currently operated by Coinbase. This sequencing function provides transaction ordering and execution on the Layer-2 network but does not constitute a decentralised consensus mechanism. The validity of Layer-2 state transitions is supported by an optimistic fault-proof mechanism, under which incorrect state commitments may be challenged during the applicable dispute period. Accordingly, Base's security model depends on Ethereum Layer 1 for settlement and finality, while Layer-2 transaction ordering remains dependent on the sequencer.

S.5 Incentive Mechanisms and Applicable Fees

Base does not have a native protocol token and does not operate a staking, validator reward or token issuance mechanism. Transaction fees on Base are paid in ETH. The economic incentives within the network are primarily related to transaction processing and network security. Transactions are executed on Base and periodically submitted to Ethereum Layer 1 in batches. As the cost of a Layer-1 submission is shared among multiple Layer-2 transactions, the average transaction cost per transaction may be lower than executing the same transactions directly on Ethereum Layer 1. The integrity of withdrawals from Base is supported by a fault-proof mechanism. Withdrawals are subject to a dispute period during which participants may challenge incorrect state commitments. The

dispute process incorporates economic incentives intended to encourage honest behaviour and discourage invalid claims.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) base is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for SPICE

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	SPICE	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	0.08735	kWh/a

Qualitative information

S.4 Consensus Mechanism

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):
 - Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
 - Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.
2. Proof of Stake (PoS):
 - Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
 - Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.

- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.
- 2. Delegators:
 - Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.
- 3. Economic Security:
 - Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
 - Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.
2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.
3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.
4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Impossible Cloud Network

ICNT | /

Quantitative information

Quantitative sustainability indicators for Impossible Cloud Network

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Impossible Cloud Network	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	0.08244	kWh/a

Qualitative information

S.4 Consensus Mechanism

Impossible Cloud Network is present on the following networks: Base, Ethereum.

Base does not operate its own consensus mechanism or decentralised validator set comparable to a Layer-1 blockchain. As an optimistic rollup Layer-2 network, Base relies on Ethereum's Proof-of-Stake consensus for the finality and settlement of data and state commitments posted to Ethereum Layer 1. Transaction ordering on Base is performed by a sequencer, currently operated by Coinbase. This sequencing function provides transaction ordering and execution on the Layer-2 network but does not constitute a decentralised consensus mechanism. The validity of Layer-2 state transitions is supported by an optimistic fault-proof mechanism, under which incorrect state commitments may be challenged during the applicable dispute period. Accordingly, Base's security model depends on Ethereum Layer 1 for settlement and finality, while Layer-2 transaction ordering remains dependent on the sequencer.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the

canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Impossible Cloud Network is present on the following networks: Base, Ethereum.

Base does not have a native protocol token and does not operate a staking, validator reward or token issuance mechanism. Transaction fees on Base are paid in ETH. The economic incentives within the network are primarily related to transaction processing and network security. Transactions are executed on Base and periodically submitted to Ethereum Layer 1 in batches. As the cost of a Layer-1 submission is shared among multiple Layer-2 transactions, the average transaction cost per transaction may be lower than executing the same transactions directly on Ethereum Layer 1. The integrity of withdrawals from Base is supported by a fault-proof mechanism. Withdrawals are subject to a dispute period during which participants may challenge incorrect state commitments. The dispute process incorporates economic incentives intended to encourage honest behaviour and discourage invalid claims.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) base, ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for SCOR

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	SCOR	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	0.07933	kWh/a

Qualitative information

S.4 Consensus Mechanism

SCOR is present on the following networks: Base, Mantle.

Base does not operate its own consensus mechanism or decentralised validator set comparable to a Layer-1 blockchain. As an optimistic rollup Layer-2 network, Base relies on Ethereum's Proof-of-Stake consensus for the finality and settlement of data and state commitments posted to Ethereum Layer 1. Transaction ordering on Base is performed by a sequencer, currently operated by Coinbase. This sequencing function provides transaction ordering and execution on the Layer-2 network but does not constitute a decentralised consensus mechanism. The validity of Layer-2 state transitions is supported by an optimistic fault-proof mechanism, under which incorrect state commitments may be challenged during the applicable dispute period. Accordingly, Base's security model depends on Ethereum Layer 1 for settlement and finality, while Layer-2 transaction ordering remains dependent on the sequencer.

Mantle is a Layer-2 rollup built on top of Ethereum, designed to leverage Ethereum's security and Proof-of-Stake (PoS) consensus without an independent consensus layer.

Core Components of Mantle's Consensus:

1. Ethereum PoS Inheritance:

Layer-2 Rollup Model: Mantle does not operate its own consensus mechanism; instead, it relies on Ethereum's PoS for transaction finalization and network security. As a rollup on Ethereum, Mantle inherits the security guarantees of Ethereum's established PoS model.

2. Rollup Type Options:

Optimistic Rollups or Zero-Knowledge Rollups: Depending on its configuration, Mantle may use either Optimistic Rollups or Zero-Knowledge Rollups (zk-Rollups) to batch transactions. These rollup methods allow Mantle to achieve efficient off-chain processing and on-chain finality by periodically committing transaction data to Ethereum's mainnet.

S.5 Incentive Mechanisms and Applicable Fees

SCOR is present on the following networks: Base, Mantle.

Base does not have a native protocol token and does not operate a staking, validator reward or token issuance mechanism. Transaction fees on Base are paid in ETH. The economic incentives within the network are primarily related to transaction processing and network security. Transactions are executed on Base and periodically submitted to Ethereum Layer 1 in batches. As the cost of a Layer-1 submission is shared among multiple Layer-2 transactions, the average transaction cost per transaction may be lower than executing the same transactions directly on Ethereum Layer 1. The integrity of withdrawals from Base is supported by a fault-proof mechanism. Withdrawals are subject to a dispute period during which participants may challenge incorrect state commitments. The dispute process incorporates economic incentives intended to encourage honest behaviour and discourage invalid claims.

Mantle aims to reduce transaction fees for users by utilizing Ethereum compatibility, rollup technology, and transaction bundling, offering a cost-effective Layer-2 solution.

Incentive Mechanisms:

1. Gas Fee Model:

Ethereum Compatibility: Mantle is EVM-compatible, meaning it shares Ethereum's gas fee model. Transactions require users to pay fees in units of gas, with costs varying based on transaction complexity and computational demand.

2. Lower Transaction Costs:

- Off-Chain Processing with Bundling: By processing transactions off-chain and settling data on Ethereum only periodically, Mantle reduces individual transaction costs. This method results in significantly lower fees compared to the Ethereum mainnet.
- Economies of Scale: Through transaction bundling, Mantle can spread the cost of Ethereum's on-chain settlement across multiple transactions, allowing users to pay only a fraction of the gas fees they would incur directly on Ethereum.

Applicable Fees:

Layer-2 Gas Fees: While Mantle's gas fees are lower than those on Ethereum, they are still measured in units of gas and depend on transaction complexity. The fees reflect the cost of executing transactions in Mantle's Layer-2 environment while benefiting from reduced overall gas consumption due to batching.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) base, mantle is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally

Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for EstateX

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	EstateX	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	0.06801	kWh/a

Qualitative information

S.4 Consensus Mechanism

EstateX is present on the following networks: Base, Binance Smart Chain.

Base does not operate its own consensus mechanism or decentralised validator set comparable to a Layer-1 blockchain. As an optimistic rollup Layer-2 network, Base relies on Ethereum's Proof-of-Stake consensus for the finality and settlement of data and state commitments posted to Ethereum Layer 1. Transaction ordering on Base is performed by a sequencer, currently operated by Coinbase. This sequencing function provides transaction ordering and execution on the Layer-2 network but does not constitute a decentralised consensus mechanism. The validity of Layer-2 state transitions is supported by an optimistic fault-proof mechanism, under which incorrect state commitments may be challenged during the applicable dispute period. Accordingly, Base's security model depends on Ethereum Layer 1 for settlement and finality, while Layer-2 transaction ordering remains dependent on the sequencer.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 "Cabinet" validators and 24 "Candidate" validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by

validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

S.5 Incentive Mechanisms and Applicable Fees

EstateX is present on the following networks: Base, Binance Smart Chain.

Base does not have a native protocol token and does not operate a staking, validator reward or token issuance mechanism. Transaction fees on Base are paid in ETH. The economic incentives within the network are primarily related to transaction processing and network security. Transactions are executed on Base and periodically submitted to Ethereum Layer 1 in batches. As the cost of a Layer-1 submission is shared among multiple Layer-2 transactions, the average transaction cost per transaction may be lower than executing the same transactions directly on Ethereum Layer 1. The integrity of withdrawals from Base is supported by a fault-proof mechanism. Withdrawals are subject to a dispute period during which participants may challenge incorrect state commitments. The dispute process incorporates economic incentives intended to encourage honest behaviour and discourage invalid claims.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) base, binance_smart_chain is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

Assisterr Token ASRR | Q19R77107

Quantitative information

Quantitative sustainability indicators for Assisterr Token

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Assisterr Token	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	0.05875	kWh/a

Qualitative information

S.4 Consensus Mechanism

Assisterr Token is present on the following networks: Binance Smart Chain, Solana.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Assisterr Token is present on the following networks: Binance Smart Chain, Solana.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.
- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.

2. Delegators:

- Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.

3. Economic Security:

- Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
- Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties. Fees Applicable on the Solana Blockchain

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.

2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.

3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.

4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) binance_smart_chain, solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Infrared

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Infrared	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	0.03413	kWh/a

Qualitative information

S.4 Consensus Mechanism

Infrared is present on the following networks: Berachain, Binance Smart Chain.

Berachain utilizes a unique consensus mechanism called Proof-of-Liquidity (PoL). In this system, validators secure the network by staking the native gas token, \$BERA. The likelihood of a validator being selected to propose a block is proportional to the amount of \$BERA they have staked. Upon successfully proposing a block, validators receive rewards in the form of \$BGT (Bera Governance Token). The amount of \$BGT awarded is influenced by the level of \$BGT delegation they have received from other participants. This mechanism aligns the incentives of validators, protocols, and users, contributing to the overall long-term health of the chain.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 "Cabinet" validators and 24 "Candidate" validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower

probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

S.5 Incentive Mechanisms and Applicable Fees

Infrared is present on the following networks: Berachain, Binance Smart Chain.

In Berachain's economic model, validators and delegators are incentivized through a combination of staking rewards and protocol-provided incentives. Validators earn \$BGT rewards for block production, with the reward size determined by their boost, which is a percentage calculated from the validator's \$BGT boost out of the total \$BGT boosted to all validators. Validators can direct their \$BGT emissions to whitelisted Reward Vaults of their choosing, and in exchange, they receive protocol-provided incentives from these Reward Vaults. Delegators, by staking their \$BGT with validators, can influence the validator's boost and share in the rewards. Transaction fees on the network are paid in \$BERA and are burned, removing them from the circulating supply. This structure ensures that all participants are motivated to contribute to the network's security and efficiency.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) berachain, binance_smart_chain is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Hybrid

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Hybrid	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	0.03204	kWh/a

Qualitative information

S.4 Consensus Mechanism

The Avalanche C-Chain uses the Snowman++ consensus mechanism, which is Avalanche's consensus model for linear blockchains and is implemented through the ProposerVM wrapper. Under this model, validators repeatedly query a small random subset of other validators and converge on a preferred block once the required confidence thresholds are met. Only Primary Network validators are entitled to validate the C-Chain. To participate as a validator on Avalanche mainnet, a node must stake a minimum number of token. Token holders may also participate indirectly by delegating an existing validator. Validator identity and admission to staking require the relevant staking credentials, including BLS proofs of possession under the current staking framework. For block production, Snowman++ uses stake-weighted proposer windows. Through the ProposerVM, block-building opportunities are assigned to proposers in 5-second windows, after which block production may fall back more broadly to validators if necessary. This mechanism is intended to regulate block production while preserving network liveness. Consensus voting itself remains based on repeated sub-sampled polling rather than fixed validator committees. Avalanche documentation describes the finality model as sub-second and treated by the protocol as final and irreversible once accepted, while noting that safety is probabilistic in the formal sense because the probability of conflicting acceptance can be reduced to an arbitrarily low level through the protocol parameters. The protocol does not rely on slashing of staked principal. Instead, validator reward eligibility depends on compliance with protocol conditions, including uptime requirements.

S.5 Incentive Mechanisms and Applicable Fees

The Avalanche C-Chain is secured economically through the native AVAX token. Validator incentives are based primarily on staking rewards, not on redistribution of C-Chain transaction fees. A fixed amount of 360 million AVAX was minted at genesis, while additional AVAX is minted over time as validator rewards, subject to Avalanche's capped token supply framework. Validator rewards are paid at the end of the staking period and are determined by factors such as the validator's stake and compliance with staking conditions. Unlike some proof-of-stake systems, the Avalanche Primary Network does not use slashing of bonded principal as an ordinary penalty mechanism. Instead, the main protocol-level economic consequence for underperformance is the loss of reward eligibility. Where a validator fails to satisfy the applicable uptime requirement during its staking term, that validator does not receive the corresponding staking reward. Transaction fees apply on the C-Chain for transfers and smart-contract execution. The fee model follows EIP-1559 logic, meaning that transactions are priced through a dynamic base fee mechanism. In contrast to Ethereum's validator tip model, C-Chain transaction fees are burned rather than distributed to validators. This means that C-Chain fees function as a supply-reduction mechanism and are intended in part to offset inflation arising from the minting of validator rewards. In addition to ordinary transaction and smart-contract execution fees, Avalanche documentation also recognises protocol fees in connection with other network operations on other chains of the Primary Network, such as certain import or export operations and staking-related actions. However, for the C-Chain itself, the core applicable fee category is the gas fee for transaction inclusion and contract execution, and those fees are handled through the protocol burn mechanism rather than paid to validators or a treasury.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) avalanche is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



FreeStyle Classic

FST | /

Quantitative information

Quantitative sustainability indicators for FreeStyle Classic

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	FreeStyle Classic	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	0.02236	kWh/a

Qualitative information

S.4 Consensus Mechanism

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

S.5 Incentive Mechanisms and Applicable Fees

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that

proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) `binance_smart_chain` is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Moonveil

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Moonveil	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	0.02164	kWh/a

Qualitative information

S.4 Consensus Mechanism

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

S.5 Incentive Mechanisms and Applicable Fees

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that

proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) `binance_smart_chain` is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Backstage

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Backstage	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	0.01491	kWh/a

Qualitative information

S.4 Consensus Mechanism

Base does not operate its own consensus mechanism or decentralised validator set comparable to a Layer-1 blockchain. As an optimistic rollup Layer-2 network, Base relies on Ethereum's Proof-of-Stake consensus for the finality and settlement of data and state commitments posted to Ethereum Layer 1. Transaction ordering on Base is performed by a sequencer, currently operated by Coinbase. This sequencing function provides transaction ordering and execution on the Layer-2 network but does not constitute a decentralised consensus mechanism. The validity of Layer-2 state transitions is supported by an optimistic fault-proof mechanism, under which incorrect state commitments may be challenged during the applicable dispute period. Accordingly, Base's security model depends on Ethereum Layer 1 for settlement and finality, while Layer-2 transaction ordering remains dependent on the sequencer.

S.5 Incentive Mechanisms and Applicable Fees

Base does not have a native protocol token and does not operate a staking, validator reward or token issuance mechanism. Transaction fees on Base are paid in ETH. The economic incentives within the network are primarily related to transaction processing and network security. Transactions are executed on Base and periodically submitted to Ethereum Layer 1 in batches. As the cost of a Layer-1 submission is shared among multiple Layer-2 transactions, the average transaction cost per transaction may be lower than executing the same transactions directly on Ethereum Layer 1. The integrity of withdrawals from Base is supported by a fault-proof mechanism. Withdrawals are subject to a dispute period during which participants may challenge incorrect state commitments. The

dispute process incorporates economic incentives intended to encourage honest behaviour and discourage invalid claims.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) base is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.


Ls Solana

LSSOL | /

Quantitative information

Quantitative sustainability indicators for Ls Solana

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Ls Solana	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	0.01123	kWh/a

Qualitative information

S.4 Consensus Mechanism

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.

- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.
- 2. Delegators:
 - Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.
- 3. Economic Security:
 - Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
 - Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.
2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.
3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.
4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Travala.com Token

AVA | CC6CCR7SG

Quantitative information

Quantitative sustainability indicators for Travala.com Token

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Travala.com Token	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	0.00537	kWh/a

Qualitative information

S.4 Consensus Mechanism

Travala.com Token is present on the following networks: Binance Smart Chain, Ethereum.

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 "Cabinet" validators and 24 "Candidate" validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon

Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Travala.com Token is present on the following networks: Binance Smart Chain, Ethereum.

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to

slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) binance_smart_chain, ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.


boss_token

BOSS | /

Quantitative information

Quantitative sustainability indicators for boss_token

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	boss_token	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	0.00508	kWh/a

Qualitative information

S.4 Consensus Mechanism

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

S.5 Incentive Mechanisms and Applicable Fees

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that

proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) `binance_smart_chain` is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for SaucerSwap

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	SaucerSwap	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	0.00490	kWh/a

Qualitative information

S.4 Consensus Mechanism

SaucerSwap is present on the following networks: Base, Hedera Hbar.

Base does not operate its own consensus mechanism or decentralised validator set comparable to a Layer-1 blockchain. As an optimistic rollup Layer-2 network, Base relies on Ethereum's Proof-of-Stake consensus for the finality and settlement of data and state commitments posted to Ethereum Layer 1. Transaction ordering on Base is performed by a sequencer, currently operated by Coinbase. This sequencing function provides transaction ordering and execution on the Layer-2 network but does not constitute a decentralised consensus mechanism. The validity of Layer-2 state transitions is supported by an optimistic fault-proof mechanism, under which incorrect state commitments may be challenged during the applicable dispute period. Accordingly, Base's security model depends on Ethereum Layer 1 for settlement and finality, while Layer-2 transaction ordering remains dependent on the sequencer.

Hedera Hashgraph operates on a unique Hashgraph consensus algorithm, a directed acyclic graph (DAG) system that diverges from traditional blockchain technology. It uses Asynchronous Byzantine Fault Tolerance (aBFT) to secure the network.

Core Components:

1. Hashgraph Consensus and aBFT:

Hedera Hashgraph's consensus mechanism achieves aBFT, which allows the network to tolerate malicious nodes without compromising security, ensuring high levels of fault tolerance and stability.

2. Gossip about Gossip Protocol:

The network employs a "Gossip about Gossip" protocol, where nodes share transaction information along with details of previous gossip events. This process allows each node to rapidly learn the entire network state, enhancing communication efficiency and minimizing latency.

3. Virtual Voting:

Hedera does not rely on traditional miners or stakers. Instead, it uses virtual voting, where nodes reach consensus by analyzing the gossip history and simulating votes based on the order and frequency of transactions received. Virtual voting eliminates the need for actual voting messages, reducing network congestion and speeding up consensus.

4. Deterministic Finality:

Once consensus is reached, transactions achieve deterministic finality instantly, making them irreversible and confirmed within seconds. This attribute is ideal for applications needing quick and irreversible transaction confirmations.

5. Staking for Network Security:

Hedera incorporates staking to bolster network security. HBAR holders can stake their tokens to support validator nodes, contributing to the network's resilience and encouraging long-term engagement in consensus operations.

S.5 Incentive Mechanisms and Applicable Fees

SaucerSwap is present on the following networks: Base, Hedera Hbar.

Base does not have a native protocol token and does not operate a staking, validator reward or token issuance mechanism. Transaction fees on Base are paid in ETH. The economic incentives within the network are primarily related to transaction processing and network security. Transactions are executed on Base and periodically submitted to Ethereum Layer 1 in batches. As the cost of a Layer-1 submission is shared among multiple Layer-2 transactions, the average transaction cost per transaction may be lower than executing the same transactions directly on Ethereum Layer 1. The integrity of withdrawals from Base is supported by a fault-proof mechanism. Withdrawals are subject to a dispute period during which participants may challenge incorrect state commitments. The dispute process incorporates economic incentives intended to encourage honest behaviour and discourage invalid claims.

Hedera Hashgraph incentivizes network participation through transaction fees and staking rewards, with a structured and predictable fee model designed for enterprise use.

Incentive Mechanisms:

1. Staking Rewards for Nodes:

- HBAR Rewards for Node Operators: Node operators earn HBAR rewards for providing network security and processing transactions, incentivizing them to act honestly and support network stability.
- User Staking: HBAR holders can stake their tokens to support nodes. Staking rewards offer an additional incentive for token holders to engage in network operations, although the structure may evolve with network growth.

2. Service-Based Node Rewards:

Nodes receive rewards based on specific services they provide to the network, such as:

- Consensus Services: Reaching consensus and maintaining transaction order.
- File Storage: Storing data on the Hedera network.
- Smart Contract Processing: Supporting contract executions for decentralized applications.

Applicable Fees:

1. Predictable Transaction Fees: Hedera's fee structure is fixed and predictable, ensuring transparent costs for users and appealing to enterprise-grade applications. Transaction fees are paid in HBAR and are designed to be stable, making it easier for businesses to plan for usage costs.
2. Fee Allocation: All transaction fees collected in HBAR are distributed to network nodes as rewards, reinforcing their role in maintaining network integrity and processing transactions efficiently.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) base, `hedera_hbar` is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Unite

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Unite	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	0.00145	kWh/a

Qualitative information

S.4 Consensus Mechanism

Base does not operate its own consensus mechanism or decentralised validator set comparable to a Layer-1 blockchain. As an optimistic rollup Layer-2 network, Base relies on Ethereum's Proof-of-Stake consensus for the finality and settlement of data and state commitments posted to Ethereum Layer 1. Transaction ordering on Base is performed by a sequencer, currently operated by Coinbase. This sequencing function provides transaction ordering and execution on the Layer-2 network but does not constitute a decentralised consensus mechanism. The validity of Layer-2 state transitions is supported by an optimistic fault-proof mechanism, under which incorrect state commitments may be challenged during the applicable dispute period. Accordingly, Base's security model depends on Ethereum Layer 1 for settlement and finality, while Layer-2 transaction ordering remains dependent on the sequencer.

S.5 Incentive Mechanisms and Applicable Fees

Base does not have a native protocol token and does not operate a staking, validator reward or token issuance mechanism. Transaction fees on Base are paid in ETH. The economic incentives within the network are primarily related to transaction processing and network security. Transactions are executed on Base and periodically submitted to Ethereum Layer 1 in batches. As the cost of a Layer-1 submission is shared among multiple Layer-2 transactions, the average transaction cost per transaction may be lower than executing the same transactions directly on Ethereum Layer 1. The integrity of withdrawals from Base is supported by a fault-proof mechanism. Withdrawals are subject to a dispute period during which participants may challenge incorrect state commitments. The

dispute process incorporates economic incentives intended to encourage honest behaviour and discourage invalid claims.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) base is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Genshiro

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Genshiro	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	0.00044	kWh/a

Qualitative information

S.4 Consensus Mechanism

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

S.5 Incentive Mechanisms and Applicable Fees

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that

proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) `binance_smart_chain` is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for chillhouse

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	chillhouse	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	0.00021	kWh/a

Qualitative information

S.4 Consensus Mechanism

Base does not operate its own consensus mechanism or decentralised validator set comparable to a Layer-1 blockchain. As an optimistic rollup Layer-2 network, Base relies on Ethereum's Proof-of-Stake consensus for the finality and settlement of data and state commitments posted to Ethereum Layer 1. Transaction ordering on Base is performed by a sequencer, currently operated by Coinbase. This sequencing function provides transaction ordering and execution on the Layer-2 network but does not constitute a decentralised consensus mechanism. The validity of Layer-2 state transitions is supported by an optimistic fault-proof mechanism, under which incorrect state commitments may be challenged during the applicable dispute period. Accordingly, Base's security model depends on Ethereum Layer 1 for settlement and finality, while Layer-2 transaction ordering remains dependent on the sequencer.

S.5 Incentive Mechanisms and Applicable Fees

Base does not have a native protocol token and does not operate a staking, validator reward or token issuance mechanism. Transaction fees on Base are paid in ETH. The economic incentives within the network are primarily related to transaction processing and network security. Transactions are executed on Base and periodically submitted to Ethereum Layer 1 in batches. As the cost of a Layer-1 submission is shared among multiple Layer-2 transactions, the average transaction cost per transaction may be lower than executing the same transactions directly on Ethereum Layer 1. The integrity of withdrawals from Base is supported by a fault-proof mechanism. Withdrawals are subject to a dispute period during which participants may challenge incorrect state commitments. The

dispute process incorporates economic incentives intended to encourage honest behaviour and discourage invalid claims.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) base is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



baby_shhark_universe

BSU | /

Quantitative information

Quantitative sustainability indicators for baby_shhark_universe

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	baby_shhark_universe	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	0.00000	kWh/a

Qualitative information

S.4 Consensus Mechanism

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

S.5 Incentive Mechanisms and Applicable Fees

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that

proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) `binance_smart_chain` is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Bitget Token

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Bitget Token	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	0.00000	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Black Mirror Experience Token

MIRROR | 9D7L206V0

Quantitative information

Quantitative sustainability indicators for Black Mirror Experience Token

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Black Mirror Experience Token	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	0.00000	kWh/a

Qualitative information

S.4 Consensus Mechanism

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

S.5 Incentive Mechanisms and Applicable Fees

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that

proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) `binance_smart_chain` is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Crust Shadow

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Crust Shadow	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	0.00000	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Envision

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Envision	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	0.00000	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Linkka

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Linkka	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	0.00000	kWh/a

Qualitative information

S.4 Consensus Mechanism

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

S.5 Incentive Mechanisms and Applicable Fees

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that

proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) `binance_smart_chain` is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for MoonTools

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	MoonTools	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	0.00000	kWh/a

Qualitative information

S.4 Consensus Mechanism

MoonTools is present on the following networks: Ethereum, Polygon.

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

Polygon PoS is an EVM-compatible sidechain that operates with a Proof-of-Stake consensus mechanism and periodically submits checkpoints to the Ethereum mainnet. The network maintains its own validator set and processes transactions independently from Ethereum, while using Ethereum smart contracts for staking-related functions and checkpoint verification. Polygon PoS therefore uses Ethereum as a staking and checkpointing layer, but does not rely on Ethereum for full

transaction execution or transaction data availability. The Polygon-side architecture consists of two primary node layers. The Bor layer is responsible for transaction execution and block production. The Heimdall layer is responsible for validator coordination, staking-related monitoring, consensus, and checkpoint finalisation. Heimdall is based on Cosmos SDK and CometBFT and aggregates blocks produced by Bor into periodic Merkle-root checkpoints that are submitted to smart contracts on the Ethereum mainnet. Validators participate in the network by staking POL tokens. Token holders may delegate POL tokens to validators, contributing to the validator's effective stake and participating indirectly in network validation. Following the Rio upgrade, Polygon PoS uses a Validator-Elected Block Producer model. Under this model, validators elect the block producer or block producers for a span, rather than relying on the previous stake-weighted selection model for multiple block producers over shorter intervals. Block production and transaction execution are performed on the Bor layer, while Heimdall validators coordinate consensus and checkpoint finalisation. At regular intervals, Heimdall validators aggregate blocks into a Merkle root and submit the resulting checkpoint to Ethereum smart contracts. These checkpoints provide an additional verification layer and support cross-chain verification, including in the context of asset transfers between Polygon PoS and Ethereum. This design enables higher transaction throughput and lower transaction costs than the Ethereum mainnet, while maintaining a technical connection to Ethereum through staking contracts and periodic checkpointing. Polygon PoS should therefore be understood as an independent sidechain or commit-chain architecture, rather than a rollup that inherits full execution and data availability security from Ethereum.

S.5 Incentive Mechanisms and Applicable Fees

MoonTools is present on the following networks: Ethereum, Polygon.

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

Polygon PoS uses economic incentives to support validator participation, transaction processing, and network operation. Validators stake POL tokens and participate in block production, validation, voting, and checkpoint finalisation. Validators may receive rewards connected to their participation in the network, including rewards linked to validation activities and transaction-fee allocation, depending on the applicable protocol rules. Token holders who do not operate validator infrastructure may delegate POL tokens to validators. Delegators may receive a share of rewards attributable to the validator to whom they delegate, subject to the validator's commission and applicable protocol rules. Delegation increases the validator's effective stake and may affect its role in the validator set and related network processes. Following the Rio upgrade, Polygon PoS introduced a Validator-Elected Block Producer model, under which validators elect the block producer or block producers for a span. Publicly described protocol changes associated with this model also provide for redistribution of fees, including maximum extractable value-related fees where applicable, to non-producing validators under the relevant protocol design. This changes the incentive structure

from the previous model in which block production selection was more directly described by reference to stake-weighted producer selection. Polygon PoS includes protocol specifications for validator penalties, including slashing-related concepts. Transactions on Polygon PoS require payment of network fees in POL. Fees apply to ordinary token transfers, smart contract deployment, and smart contract interaction. The amount of fees may vary depending on network demand, transaction complexity, and computational resources required. Because Polygon PoS processes transactions independently from Ethereum, transaction fees are generally designed to be lower than equivalent activity on the Ethereum mainnet, although actual fees may change according to network conditions and protocol parameters.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum, polygon is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



My Neighbor Alice

ALICE | 1S7VZCTZL

Quantitative information

Quantitative sustainability indicators for My Neighbor Alice

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	My Neighbor Alice	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	0.00000	kWh/a

Qualitative information

S.4 Consensus Mechanism

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.

- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.
- 2. Delegators:
 - Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.
- 3. Economic Security:
 - Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
 - Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.
2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.
3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.
4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Raiin

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Raiin	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	0.00000	kWh/a

Qualitative information

S.4 Consensus Mechanism

Raiin is present on the following networks: Base, Sei.

Base does not operate its own consensus mechanism or decentralised validator set comparable to a Layer-1 blockchain. As an optimistic rollup Layer-2 network, Base relies on Ethereum's Proof-of-Stake consensus for the finality and settlement of data and state commitments posted to Ethereum Layer 1. Transaction ordering on Base is performed by a sequencer, currently operated by Coinbase. This sequencing function provides transaction ordering and execution on the Layer-2 network but does not constitute a decentralised consensus mechanism. The validity of Layer-2 state transitions is supported by an optimistic fault-proof mechanism, under which incorrect state commitments may be challenged during the applicable dispute period. Accordingly, Base's security model depends on Ethereum Layer 1 for settlement and finality, while Layer-2 transaction ordering remains dependent on the sequencer.

Sei leverages its Twin-Turbo consensus mechanism, integrating advanced transaction processing techniques with the reliability of Tendermint Core, to achieve high performance and security.

Core Components:

- Twin-Turbo Consensus:
 - Optimistic Block Processing: Validators process transactions optimistically, assuming their validity, reducing latency and increasing throughput.

- Intelligent Block Propagation: Compressed block proposals containing transaction hashes enable validators to reconstruct blocks locally, expediting consensus.
- Single Slot Finality: Ensures immediate block finality upon addition, eliminating the need for confirmations and minimizing the risk of chain reorganizations.
- Tendermint Core Integration:
Incorporates Byzantine Fault Tolerance (BFT) to maintain security and resilience, safeguarding the network against malicious actors.

S.5 Incentive Mechanisms and Applicable Fees

Raiin is present on the following networks: Base, Sei.

Base does not have a native protocol token and does not operate a staking, validator reward or token issuance mechanism. Transaction fees on Base are paid in ETH. The economic incentives within the network are primarily related to transaction processing and network security. Transactions are executed on Base and periodically submitted to Ethereum Layer 1 in batches. As the cost of a Layer-1 submission is shared among multiple Layer-2 transactions, the average transaction cost per transaction may be lower than executing the same transactions directly on Ethereum Layer 1. The integrity of withdrawals from Base is supported by a fault-proof mechanism. Withdrawals are subject to a dispute period during which participants may challenge incorrect state commitments. The dispute process incorporates economic incentives intended to encourage honest behaviour and discourage invalid claims.

The Sei Network incentivizes participation through staking rewards and a transparent fee structure, supporting its decentralized ecosystem.

Incentive Mechanisms:

- Staking Rewards: Validators and delegators earn SEI tokens as rewards for securing the network through staking, promoting active engagement and long-term commitment.
- Governance Participation: SEI token holders can participate in network governance decisions, influencing protocol upgrades and key changes.

Applicable Fees:

Transaction Fees: Users pay fees in SEI tokens for network transactions. These fees are distributed to validators and delegators as rewards, supporting network operations and security.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) base, sei is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Ren

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Ren	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	0.00000	kWh/a

Qualitative information

S.4 Consensus Mechanism

The NEAR Protocol uses a unique consensus mechanism combining Proof of Stake (PoS) and a novel approach called Doomslug, which enables high efficiency, fast transaction processing, and secure finality in its operations.

Core Concepts:

1. Doomslug and Proof of Stake:
 - NEAR's consensus mechanism primarily revolves around PoS, where validators stake NEAR tokens to participate in securing the network. However, NEAR's implementation is enhanced with the Doomslug protocol.
 - Doomslug allows the network to achieve fast block finality by requiring blocks to be confirmed in two stages. Validators propose blocks in the first step, and finalization occurs when two-thirds of validators approve the block, ensuring rapid transaction confirmation.
2. Sharding with Nightshade:
 - NEAR uses a dynamic sharding technique called Nightshade. This method splits the network into multiple shards, enabling parallel processing of transactions across the network, thus significantly increasing throughput. Each shard processes a portion of transactions, and the outcomes are merged into a single "snapshot" block.
 - This sharding approach ensures scalability, allowing the network to grow and handle increasing demand efficiently.

Consensus Process:

1. Validator Selection:

- Validators are selected to propose and validate blocks based on the amount of NEAR tokens staked. This selection process is designed to ensure that only validators with significant stakes and community trust participate in securing the network.

2. Transaction Finality:

- NEAR achieves transaction finality through its PoS-based system, where validators vote on blocks. Once two-thirds of validators approve a block, it reaches finality under Dooomslug, meaning that no forks can alter the confirmed state.

3. Epochs and Rotation:

- Validators are rotated in epochs to ensure fairness and decentralization. Epochs are intervals in which validators are reshuffled, and new block proposers are selected, ensuring a balance between performance and decentralization.

S.5 Incentive Mechanisms and Applicable Fees

NEAR Protocol employs several economic mechanisms to secure the network and incentivize participation.

Incentive Mechanisms to Secure Transactions:

1. Staking Rewards:

Validators and delegators secure the network by staking NEAR tokens. Validators earn around 5% annual inflation, with 90% of newly minted tokens distributed as staking rewards. Validators propose blocks, validate transactions, and receive a share of these rewards based on their staked tokens. Delegators earn rewards proportional to their delegation, encouraging broad participation.

2. Delegation:

Token holders can delegate their NEAR tokens to validators to increase the validator's stake and improve the chances of being selected to validate transactions. Delegators share in the validator's rewards based on their delegated tokens, incentivizing users to support reliable validators.

3. Slashing and Economic Penalties:

Validators face penalties for malicious behavior, such as failing to validate correctly or acting dishonestly. The slashing mechanism enforces security by deducting a portion of their staked tokens, ensuring validators follow the network's best interests.

4. Epoch Rotation and Validator Selection:

Validators are rotated regularly during epochs to ensure fairness and prevent centralization. Each epoch reshuffles validators, allowing the protocol to balance decentralization with performance.

Fees on the NEAR Blockchain:

1. Transaction Fees:

Users pay fees in NEAR tokens for transaction processing, which are burned to reduce the total circulating supply, introducing a potential deflationary effect over time. Validators also receive a portion of transaction fees as additional rewards, providing an ongoing incentive for network maintenance.

2. Storage Fees:

NEAR Protocol charges storage fees based on the amount of blockchain storage consumed by accounts, contracts, and data. This requires users to hold NEAR tokens as a deposit proportional to their storage usage, ensuring the efficient use of network resources.

3. Redistribution and Burning:

A portion of the transaction fees (burned NEAR tokens) reduces the overall supply, while the rest is distributed to validators as compensation for their work. The burning mechanism helps maintain long-term economic sustainability and potential value appreciation for NEAR holders.

4. Reserve Requirement:

Users must maintain a minimum account balance and reserves for data storage, encouraging efficient use of resources and preventing spam attacks.

5.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) `near_protocol` is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Revive

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Revive	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	0.00000	kWh/a

Qualitative information

S.4 Consensus Mechanism

Binance Smart Chain (BSC) uses a hybrid consensus mechanism called Proof-of-Staked-Authority (PoSA), which combines elements of Delegated-Proof-of-Stake (DPoS) and Proof-of-Authority (PoA). This method is intended to support fast block times and low fees while maintaining a level of decentralisation and security. Validators are responsible for producing blocks, validating transactions, and maintaining network security. The validator set consists of up to 45 validators, including 21 “Cabinet” validators and 24 “Candidate” validators, selected based on bonded stake. A subset of validators is selected per epoch to participate in block production. Token holders may delegate BNB to validators to support their selection. Delegators share in the rewards generated by validators, providing an economic incentive to participate in staking. Validator candidates are nodes that have staked BNB but are not part of the primary validator subset for a given epoch. They may be selected into the active set based on staking rank and can participate in block production with lower probability. Validators are ranked based on the amount of bonded BNB and are updated periodically. Validators must stake BNB as collateral and may be subject to slashing in cases of misbehaviour, including double-signing, malicious voting, or prolonged downtime.

S.5 Incentive Mechanisms and Applicable Fees

Validators must self-delegate BNB in order to participate in the validator system. Validator selection is staking-based, and validators that rank highly enough enter the active set and participate in block production and transaction validation. Validators are rewarded from transaction fees collected on the network. When a block is produced, most of the block fee is allocated to the validator that

proposed the block. A portion is retained as validator commission, while the remainder is allocated for distribution through the validator credit structure. BNB holders may delegate BNB to validators. This increases the validator's total stake and may improve its position in the validator ranking. Delegators share in the rewards earned by the validator they support, after deduction of the validator's commission. BSC distinguishes between Cabinet, Candidate and Inactive validators. The current model provides that the top 21 validators form the Cabinet, while the validators ranked from 22 to 45 are Candidates. Candidate validators have a smaller chance of producing blocks, but they remain part of the broader validator structure and support network resilience. Validator roles are updated every 24 hours based on the latest staking information. Validators may be penalised for misconduct or poor performance. Slashable events include double signing, malicious fast-finality voting and unavailability. Depending on the violation, consequences may include removal from the validator set, loss of staking rewards and slashing of part of the validator's self-delegated BNB. The staking model therefore creates an economic incentive for validators and delegators to support reliable validator performance. Transaction fees on BSC are paid in BNB and are intended to compensate validators for maintaining the network. BSC is designed as a comparatively low-fee network, and smart-contract transactions and transfers require gas fees in BNB. BSC does not rely on a separate protocol-level block reward. Instead, staking rewards are derived from transaction fees. Most of the block fee is allocated to the proposing validator, then split between validator commission and delegator-linked reward distribution. Part of transaction-fee revenue is collected through the System Reward Contract and used for designated system purposes, including fast-finality rewards. Deploying and interacting with smart contracts on BSC requires payment of gas fees in BNB. These fees depend on the computational resources required and form part of the network's overall fee and validator-incentive model.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) `binance_smart_chain` is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.


Space

SPC | FHQ1V6GXX

Quantitative information

Quantitative sustainability indicators for Space

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Space	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	0.00000	kWh/a

Qualitative information

S.4 Consensus Mechanism

Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security.

Core Concepts:

1. Proof of History (PoH):

- Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time.
- Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

- Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.
- Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security.

Consensus Process:

1. Transaction Validation:

Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

Security and Economic Incentives:

1. Incentives for Validators:

- Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.
- Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

2. Security:

- Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.
- Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

S.5 Incentive Mechanisms and Applicable Fees

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions.

Incentive Mechanisms:

1. Validators:

- Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.

- Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.
- 2. Delegators:
 - Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.
- 3. Economic Security:
 - Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.
 - Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

Transaction Fees:

1. Low and Predictable Fees:

Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.
2. Fee Structure:

Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.
3. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.
4. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.



Quantitative information

Quantitative sustainability indicators for Traceability Chain

Field	Value	Unit
S.1 Name	Payward Global Solutions Limited	/
S.2 Relevant legal entity identifier	9845003D98SCC2851458	/
S.3 Name of the crypto-asset	Traceability Chain	/
S.6 Beginning of the period to which the disclosure relates	2025-09-11	/
S.7 End of the period to which the disclosure relates	2026-09-11	/
S.8 Energy consumption	0.00000	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks,

attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

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