Liquid Staked Solana (LsSOL)
White paper

In accordance with Title II of Regulation (EU) 2023/1114 (MiCA)

N	Field	Content
0	Table of content	

01	Date of notification	2025-07-25
02	Statement in accordance with Article 6(3) of Regulation (EU) 2023/1114	This crypto-asset white paper has not been approved by any competent authority in any Member State of the European Union. The operator of the trading platform of the crypto-asset is solely responsible for the content of this crypto-asset white paper.
03	Compliance statement in accordance with Article 6(6) of Regulation (EU) 2023/1114	This crypto-asset white paper complies with Title II of Regulation (EU) 2023/1114 and, to the best of the knowledge of the management body, the information presented in the crypto-asset white paper is fair, clear and not misleading and the crypto-asset white paper makes no omission likely to affect its import.
04	Statement in accordance with Article 6(5), points (a), (b), (c) of Regulation (EU) 2023/1114	The crypto-asset referred to in this white paper may lose its value in part or in full, may not always be transferable and may not be liquid.
05	Statement in accordance with Article 6(5), point (d) of Regulation (EU) 2023/1114	false
06	Statement in accordance with Article 6(5), points (e) and (f) of Regulation (EU) 2023/1114	The crypto-asset referred to in this white paper is not covered by the investor compensation schemes under Directive 97/9/EC of the European Parliament and of the Council. The crypto-asset referred to in this white paper is not covered by the deposit guarantee schemes under Directive 2014/49/EU of the European Parliament and of the Council.

Summary		
07	Warning in accordance with Article 6(7), second subparagraph of Regulation (EU) 2023/1114	**Warning** This summary should be read as an introduction to the crypto-asset white paper. The prospective holder should base any decision to purchase this crypto-asset on the content of the crypto-asset white paper as a whole and not on the summary alone. The admission to trading of this crypto-asset does not constitute an offer or solicitation to purchase financial instruments and any such offer or solicitation can be made only by means of a prospectus or other offer documents pursuant to the applicable national law. This crypto-asset white paper does not constitute a prospectus as referred to in Regulation (EU) 2017/1129 of the European Parliament and of the Council (36) or any other offer document pursuant to Union or national law.
08	Characteristics of the crypto-asset	Liquid Staked SOL (LsSOL) is a crypto-asset issued on the Solana blockchain by the Liquid Collective protocol. LsSOL represents an ownership interest in staked Solana (SOL) and entitles its holder to the underlying staked SOL and accrued staking rewards, minus applicable protocol fees and any slashing penalties. The token is freely transferable on the Solana network and can be stored in any Solana-compatible wallet. New LsSOL tokens are minted when users stake SOL through the Liquid Collective protocol, and tokens are burned when users redeem LsSOL for SOL; thus, the supply of LsSOL expands and contracts based on participation in staking rather than a fixed issuance.
09	Information about the quality and quantity of goods or services to which the utility tokens give access and restrictions on the transferability	N/A
10	Key information about the offer to the public or admission to trading	Kraken seeks admission to trading of the LsSOL token so as to be compliant with MiCA and in keeping with its mission to make available for trading to its clients a wide range of assets.

Part I – Information on risks		
I.1	Offer-Related Risks	**General Risk Factors Associated with Crypto-Asset Offerings** The admission to trading of crypto-assets, including LsSOL, is subject to general risks inherent to the broader cryptocurrency market. **Market Volatility** The value of LsSOL may experience substantial fluctuations driven by investor sentiment, macroeconomic developments, and market conditions. **Regulatory Risks** Changes in legislation, applicable laws, compliance requirements or the implementation of new regulatory frameworks could affect the availability, trading, or use of such assets. **Security Risks** The risk of exploitation, hacking or security vulnerabilities of the underlying protocol and/or contracts of the token leading to a loss. **Reputational Risks** The potential for damage to an organization's credibility or public trust, which can negatively impact stakeholder confidence and overall business viability**.**
I.2	Issuer-Related Risks	**Legal and regulatory status of issuer** The issuer is based in the Cayman Islands, a jurisdiction that may provide less regulatory oversight or recourse for investors compared to EU jurisdictions. Additionally, core development is by Alluvial in the US, where regulatory stances on crypto staking are in flux. **Issuer dependency on key personnel and contributors** The operation of Liquid Collective depends on a small group of key contributors – Alluvial's team, foundation directors, etc. The project's success is vulnerable to personnel risks: loss of key developers or leaders could slow or undermine the project's development. **Internal control and governance risk** Certain critical functions of the protocol (such as pausing the contracts, updating parameters, managing allowlists) are under the control of the issuer's governance (multi-signature admin keys). This centralized control means trust is placed in the issuer's integrity and security practices. There is a risk of mismanagement or abuse of these controls – for example, if the insiders collude or a malicious actor gains control of the foundation's admin keys, they could potentially halt withdrawals or reallocate assets improperly.

I.3	Crypto-Assets-related Risks	**Market Volatility** The crypto-asset market is subject to significant price volatility, which may affect the value of LsSOL. Prices can fluctuate rapidly and unpredictably due to various factors, including market sentiment, economic indicators, technological developments, regulatory news, and macroeconomic trends. This high level of volatility may lead to sudden gains or losses and can impact the liquidity and tradability of the crypto-asset. **Liquidity** Liquidity refers to the ability to buy or sell a crypto-asset without causing significant price impact. LsSOL may experience periods of low liquidity, meaning that it could be difficult to enter or exit positions at desired prices or volumes. Reduced liquidity may result from limited market participation, exchange restrictions, or broader market conditions. This can lead to increased price volatility, slippage, and difficulty in executing transactions. **Cybersecurity & Technology Risks** Risks arising from vulnerabilities in the blockchain technology used by the project or platforms. Example risks include smart contract exploits, compromise of platforms, forking scenarios, compromise of cryptographic algorithms. **Adoption Risks** If the project fails to achieve its goals, adoption and usage may be lower than expected. This could reduce the token's utility and overall value proposition. **Custody & Ownership Risk** The risk related to the inadequate safekeeping and control of crypto-assets e.g. loss of private keys, custodian insolvency leading to a loss.
I.4	Project Implementation-Related Risks	**Execution risk and multi-chain expansion** Liquid Collective is a complex multi-chain initiative (with Ethereum LsETH live and LsSOL newly launched). Delivering on all aspects, such as expanding to additional networks, building deep liquidity partnerships, and continuously updating the protocol, is challenging. There is a risk that the team may not successfully achieve broad adoption on Solana if, for example, competition from other Solana liquid staking providers is strong. Slower adoption or technical integration issues could lead to the project not meeting its goals, which in turn might affect support from integrators or the community. **Reliance on partners and collective governance** The project's structure as a "collective" means many independent organizations must coordinate smoothly. This includes exchanges, custodians, node operators, etc. If coordination fails, e.g., disagreements in governance, or a major participant withdraws support, the project's implementation could suffer.

		Ecosystem and DeFi integration risk A key part of Liquid Collective's value proposition is that LsSOL will be usable across the Solana DeFi ecosystem. If, for any reason, Solana DeFi protocols or users are hesitant to integrate or accept LsSOL (for example, due to its KYC nature or simply due to inertia favoring existing tokens), LsSOL may not achieve the level of utility intended. This would undermine a major selling point (liquidity and composability), potentially making the project less viable. **Operational continuity risk** The protocol's ongoing operation requires active maintenance, updates for network changes, monitoring validator performance, managing the treasury, etc. There is a risk that operational processes may encounter issues.
I.5	Technology-Related Risks	**Smart contract risks** LsSOL uses smart contracts to facilitate automated transactions and processes. While these contracts enhance efficiency and decentralization, they also introduce specific technical risks. Vulnerabilities such as coding errors, design flaws, or security loopholes within the smart contract code may be exploited by malicious actors. Such exploits could result in the loss of assets, unauthorized access to sensitive information, or unintended and irreversible execution of transactions. **Blockchain Network Risks** LsSOL operates on a public blockchain infrastructure, which is maintained by a decentralized network of participants. The functionality and reliability of the crypto-asset are dependent on the performance and security of the underlying blockchain. Risks may include network congestion, high transaction fees, delayed processing times, or, in extreme cases, outages and disruptions. Additionally, vulnerabilities or failures in the consensus mechanism, attacks on the network (e.g., 51% attacks), or protocol-level bugs could impact the operation and availability of LsSOL. **Risk of Cryptographic Vulnerabilities** Technological advancements, such as quantum computing, could pose potential risks to cryptocurrencies. **Privacy** Transactions involving LsSOL are recorded on a public blockchain, where transaction data is transparent and permanently accessible. While public addresses do not directly reveal personal identities, transaction histories can be analyzed and, in some cases, linked to individuals through data aggregation or external information sources. This transparency may pose privacy concerns for users seeking confidentiality in their financial activity. Transaction data on public

		blockchains is not inherently private and could be subject to scrutiny by third parties, including regulators, analytics firms, or malicious actors.
I.6	Mitigation measures	**Security audits and formal testing** The issuer engaged security auditors, including Halborn, Spearbit, Quantstamp, and Certora, to review the smart contracts before launch. This mitigates the risk of known attack vectors and common vulnerabilities. While not eliminating risk, these measures significantly reduce the likelihood of simple bugs making it to mainnet. **Multi-signature governance** Liquid Collective's administrative controls are under a multi-signature scheme requiring multiple independent parties to authorize sensitive actions. This mitigates the risk of unilateral malicious actions or errors, no single individual can, for example, pause the protocol or alter contracts. The board of the Liquid Foundation includes independent directors, which adds oversight. By distributing key control among reputable entities (possibly including integrator and operator representatives), the project reduces the chance of insider abuse or a single point of failure in admin keys. While multi-sig and independent directors are intended to mitigate governance risk, it remains a risk tied to issuer governance. Similarly, because some founding partners (like certain validators or exchanges) have significant influence, there is a governance concentration risk: a small group could exert outsized influence on decisions, potentially favoring their interests over those of dispersed token holders. **Institutional-grade validators and infrastructure diversity** The project chose to work only with established validator operators with strong track records (Coinbase Cloud, Figment, etc.). These operators employ robust security (e.g., HSMs for key management, redundant infrastructure) and operational expertise, reducing slashing and downtime risk. **Slashing insurance fund** Liquid Collective's protocol sets aside a portion of staking rewards into a dedicated insurance treasury to cover slashing incidents. In the event a validator is slashed, this fund can compensate LsSOL holders so that the token's value is maintained (up to coverage limits). This is a direct mitigation for validator risk, it provides a financial backstop that most independent stakers lack. **Compliance controls (KYC/AML)** By requiring KYC for participants, the project reduces certain risks such as AML regulatory crackdowns or malicious use of the token (e.g., it is less likely to be

		associated with illicit activities since users are screened). This mitigation is aimed at regulatory and reputational risk, ensuring the project remains in good standing with compliance expectations which in turn protects continuity for holders (less risk of being shut down by authorities for example). It also fosters trust with institutional integrators, encouraging broader adoption which indirectly mitigates liquidity risk. **Transparency and monitoring** The stake pool's status (total SOL staked, validators in use, performance metrics) is transparent on-chain and likely supplemented by dashboards. Users and the community can monitor the health of the protocol in real time. If issues start to arise (like a validator underperforming), the foundation can react (e.g., remove or replace it). This real-time transparency mitigates risk by enabling early detection of problems. **Robust underlying network** Solana's technical strengths (high throughput, low cost) mitigate some operational risks, for instance, low transaction fees mean that even in times of congestion, LsSOL holders are not prevented by high costs from redeeming or moving tokens. Solana's growing maturity and recent performance improvements reduce the frequency of outages, which mitigates the risk of unavailability.
Part A - Information about the offeror or the person seeking admission to trading		
A.1	Name	N/A
A.2	Legal form	N/A
A.3	Registered address	N/A
A.4	Head office	N/A
A.5	Registration Date	N/A
A.6	Legal entity identifier	N/A

A.7	Another identifier required pursuant to applicable national law	N/A
A.8	Contact telephone number	N/A
A.9	E-mail address	N/A
A.10	Response Time (Days)	N/A
A.11	Parent Company	N/A
A.12	Members of the Management body	N/A
A.13	Business Activity	N/A
A.14	Parent Company Business Activity	N/A
A.15	Newly Established	N/A
A.16	Financial condition for the past three years	N/A
A.17	Financial condition since registration	N/A

Part B - Information about the issuer, if different from the offeror or person seeking admission to trading		
B.1	Issuer different from offeror or person seeking admission to trading	true
B.2	Name	The Liquid Foundation
B.3	Legal form	Cayman Islands foundation company
B.4	Registered address	Leeward Management Limited of Suite 3119, 9 Forum Lane, Camana Bay, PO Box 144, George Town, Grand Cayman KY1-9006, Cayman Islands
B.5	Head office	Not available
B.6	Registration Date	Not available
B.7	Legal entity identifier	Not available
B.8	Another identifier required pursuant to applicable national law	Not available
B.9	Parent Company	Not available
B.10	Members of the Management body	Not available
B.11	Business Activity	Not available

B.12	Parent Company Business Activity	Not available
Part C- Information about the operator of the trading platform in cases where it draws up the crypto-asset white paper and information about other persons drawing the crypto-asset white paper pursuant to Article 6(1), second subparagraph, of Regulation (EU) 2023/1114		
C.1	Name	Payward Global Solutions LTD
C.2	Legal form	N/A
C.3	Registered address	N/A
C.4	Head office	N/A
C.5	Registration Date	2023-07-11
C.6	Legal entity identifier of the operator of the trading platform	9845003D98SCC2851458
C.7	Another identifier required pursuant to applicable national law	N/A
C.8	Parent Company	N/A
C.9	Reason for Crypto-Asset White Paper Preparation	Kraken seeks admission to trading of the LsSOL token so as to be compliant with MiCA and in keeping with its mission to make available for trading to its clients a wide range of assets.

<table>
<tr><td>C.10</td><td>Members of the Management body</td><td>
<table>
<tr><th>Full Name</th><th>Business Address</th><th>Function</th></tr>
<tr><td>Shannon Kurtas</td><td>70 Sir John Rogerson's Quay, Dublin 2, Ireland</td><td>Board Member</td></tr>
<tr><td>Andrew Mulvenny</td><td>70 Sir John Rogerson's Quay, Dublin 2, Ireland</td><td>Board Member</td></tr>
<tr><td>Shane O'Brien</td><td>70 Sir John Rogerson's Quay, Dublin 2, Ireland</td><td>Board Member</td></tr>
<tr><td>Laura Walsh</td><td>70 Sir John Rogerson's Quay, Dublin 2, Ireland</td><td>Board Member</td></tr>
<tr><td>Michael Walsh</td><td>70 Sir John Rogerson's Quay, Dublin 2, Ireland</td><td>Board Member</td></tr>
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</td></tr>
<tr><td>C.11</td><td>Operator Business Activity</td><td>PGSL is the operator of a Trading Platform for Crypto Assets, in accordance with Article 3(1)(18) of Regulation (EU) 2023/1114 (MiCA).</td></tr>
<tr><td>C.12</td><td>Parent Company Business Activity</td><td>Payward, Inc., a Delaware, USA corporation, is the parent company of a worldwide group of subsidiaries (the following paragraphs use the term "Payward" or “Payward Group” to refer to the group) collectively doing business as “Kraken.” Payward’s primary business is the operation of an online virtual asset platform that enables clients to buy and sell virtual assets on a spot basis, including the transfer of crypto-assets to and from external wallets.

Payward, through its various affiliates, offers a number of other services and products, including:</td></tr>
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		* A trading platform for futures contracts on virtual assets (“Kraken Derivatives”); * A platform for buying and selling NFTs; * An over-the-counter (“OTC”) desk; * Extensions of margin to support spot trading of virtual assets; * A benchmark administrator; and * Staking services.
C.13	Other persons drawing up the crypto-asset white paper according to Article 6(1), second subparagraph, of Regulation (EU) 2023/1114	N/A
C.14	Reason for drawing the white paper by persons referred to in Article 6(1), second subparagraph, of Regulation (EU) 2023/1114	N/A
Part D- Information about the crypto-asset project		
D.1	Crypto-asset project name	Liquid Staked Solana
D.2	Crypto-assets name	Liquid Staked Solana
D.3	Abbreviation	LsSOL

D.4	Crypto-asset project description	Liquid Collective's Solana liquid staking project is an on-chain stake pool designed to maximize staking participation, liquidity, and security on the Solana network. Participants deposit SOL into the stake pool and receive LsSOL tokens in return, which represent their staked SOL plus accumulated staking rewards. The stake pool then delegates the SOL across a set of vetted enterprise-grade validators (Node Operators) to earn network staking rewards. The LsSOL token can be used by holders in the broader ecosystem (e.g., as collateral or for trading), thereby providing liquidity to staked assets. The project emphasizes security and compliance: it employs institutional-grade security measures (smart contracts audited by security firms prior to launch, a multi-signature governance for admin controls, and real-time monitoring) and requires KYC/AML verification for all users interacting with the protocol, making it a compliant solution for institutional participants. Additionally, the protocol features a built-in slashing coverage fund, a portion of staking yields (service fee) is allocated to insure against validator slashing events, providing coverage to all LsSOL holders.
D.5	Details of all natural or legal persons involved in the implementation of the crypto-asset project	**Key entities and participants** The Liquid Collective project is developed and supported by a consortium of blockchain organizations: **Alluvial, Inc.** A Delaware-incorporated software development company that leads development of the Liquid Collective protocol. Alluvial coordinates the technical development, security audits, and integration efforts for Liquid Collective. (Alluvial's team also provides ongoing support and improvements to the protocol.) **The Liquid Foundation** A Cayman Islands foundation company (issuer) that governs the protocol's growth and decentralization. It acts as the steward of the project, ensuring decisions are made in the long-term interest of the ecosystem. Its address is Leeward Management Limited of Suite 3119, 9 Forum Lane, Camana Bay, PO Box 144, George Town, Grand Cayman KY1-9006, Cayman Islands. **Node Operator partners** A set of enterprise-grade validator service providers that operate the staking infrastructure. These node operators have been vetted and are allowlisted by the protocol to receive delegated SOL stakes, thereby securing the network while adhering to performance and security standards. **Compliance and security service providers** Liquid Collective partners with Exiger for compliance services (performing KYC/AML checks and ongoing due diligence on participants). For slashing

		insurance, Liquid Collective utilizes Nexus Mutual (a decentralized cover provider) to back the slashing coverage program. Smart contract audits have been performed by independent auditors (top-tier security firms), engaged by Alluvial, before deployment.
D.6	Utility Token Classification	false
D.7	Key Features of Goods/Services for Utility Token Projects	N/A
D.8	Plans for the token	**Past milestones** • 2023 Q4 Audit completion: Independent auditors (Halborn, Spearbit, Quantstamp, Certora) delivered final reports on the Solana stake-pool programs; material observations were remediated prior to mainnet deployment. • 2024 Q2 Controlled mainnet rollout: The Liquid Collective Solana stake-pool program was deployed on mainnet with deposits gated to a set of KYC-verified pilot participants. • 2024 Q3 Public launch of LsSOL: Public deposits of SOL and the minting of Liquid Staked SOL (LsSOL) became available to all verified users; the protocol began delegating stake across an initial allow-list of enterprise-grade Node Operators. • 2024 Q4 Slashing-coverage treasury activation: The protocol's service-fee mechanism started funding the treasury used to compensate holders in the event of validator slashing, with Nexus Mutual cover placed for excess-loss scenarios. **Future milestones** • Validator-set expansion (2025): The project aims to broaden the Node Operator allow-list, subject to governance approval and performance criteria, to enhance geographic and infrastructure diversification of delegated stake. • Additional institutional integrators (2025 and beyond): Liquid Collective intends to make LsSOL accessible through further custodial and brokerage platforms, contingent on each platform's legal and technical due-diligence processes. • Ecosystem integrations (ongoing): The project seeks to facilitate the inclusion of LsSOL in Solana-based decentralised-finance protocols, such as lending

		markets and liquidity pools, where consistent with each protocol's risk framework. • Protocol-parameter reviews (periodic): The governing multi-signature is expected to conduct scheduled reviews of stake-allocation limits, service-fee rates and coverage-fund parameters; any amendments will follow the governance process and be disclosed publicly before implementation.
D.9	Resource Allocation	The development and operation of the Liquid Collective protocol (including LsSOL on Solana) have been funded by a combination of venture funding and protocol-generated fees. Alluvial, the development company, has raised approximately $22.5 million in capital to date to support Liquid Collective's growth and multi-chain expansion. Additionally, the protocol itself sustains certain operations through its service fee on staking rewards, this fee (a small percentage of the SOL staking rewards earned) is collected into the Liquid Collective treasury. That treasury is primarily used to fund the slashing coverage pool (to compensate users in case of validator slashing), and may also support ongoing operational costs (such as maintenance of the protocol and governance costs) as needed. The Liquid Foundation, as a non-profit steward, can also deploy resources toward community grants or ecosystem initiatives to promote Liquid Collective's adoption, although no specific budget figures are disclosed. Apart from financial resources, significant human capital (the expertise of developers at Alluvial and contributions from node operators and integrators) is allocated to ensure the protocol's security and reliability. Overall, the project appears adequately resourced through venture funding and its fee model, but no public detailed breakdown of resource allocation has been provided.
D.10	Planned Use of Collected Funds or Crypto-Assets	N/A
Part E - Information about the offer to the public of crypto-assets or their admission to trading		
E.1	Public Offering or Admission to trading	ATTR

E.2	Reasons for Public Offer or Admission to trading	Making secondary trading available to the consumers on the Kraken Trading platform in compliance with the MiCA regulatory framework
E.3	Fundraising Target	N/A
E.4	Minimum Subscription Goals	N/A
E.5	Maximum Subscription Goal	N/A
E.6	Oversubscription Acceptance	N/A
E.7	Oversubscription Allocation	N/A
E.8	Issue Price	N/A
E.9	Official currency or other crypto-assets determining the issue price	N/A
E.10	Subscription fee	N/A
E.11	Offer Price Determination Method	N/A

E.12	Total Number of Offered/Traded crypto-assets	LsSOL has no fixed supply – the number of tokens in circulation at any given time equals the amount of SOL staked through Liquid Collective (plus accrued rewards). Supply is dynamic and can increase or decrease without a set maximum. There is no upper limit on LsSOL issuance; as more SOL is staked, more LsSOL is minted. Conversely, if holders redeem LsSOL for SOL, those tokens are burned, reducing supply.
E.13	Targeted Holders	ALL
E.14	Holder restrictions	N/A
E.15	Reimbursement Notice	N/A
E.16	Refund Mechanism	N/A
E.17	Refund Timeline	N/A
E.18	Offer Phases	N/A
E.19	Early Purchase Discount	N/A
E.20	Time-limited offer	N/A
E.21	Subscription period beginning	N/A
E.22	Subscription period end	N/A

E.23	Safeguarding Arrangements for Offered Funds/crypto-assets	N/A
E.24	Payment Methods for crypto-asset Purchase	N/A
E.25	Value Transfer Methods for Reimbursement	N/A
E.26	Right of Withdrawal	N/A
E.27	Transfer of Purchased crypto-assets	N/A
E.28	Transfer Time Schedule	N/A
E.29	Purchaser's Technical Requirements	N/A
E.30	Crypto-asset service provider (CASP) name	N/A
E.31	CASP identifier	N/A
E.32	Placement form	NTAV

E.33	Trading Platforms name	Payward Global Solutions Ltd t/a Kraken.com
E.34	Trading Platforms Market Identifier Code (MIC)	PGSL
E.35	Trading Platforms Access	Kraken.com
E.36	Involved costs	N/A
E.37	Offer Expenses	N/A
E.38	Conflicts of Interest	All listings decisions made by Payward Global Solution Ltd are made independently by staff of the entity in line with internal policies. PGSL publishes a conflicts of interest disclosure on its website advising of potential conflicts that may arise.
E.39	Applicable law	Any dispute relating to this white paper shall be governed by and construed and enforced in accordance with the laws of Ireland without regard to conflict of law rules or principles (whether of Ireland or any other jurisdiction) that would cause the application of the laws of any other jurisdiction, irrespective of whether LsSOL tokens qualify as right or property under the applicable law.
E.40	Competent court	Any disputes or claims arising out of this white paper will be subject to the exclusive jurisdiction of the Irish courts.
Part F - Information about the crypto-assets		
F.1	Crypto-Asset Type	LsSOL is classified as a crypto-asset other than an asset referenced token or e-money token under MiCA, (EU) 2023/1114.
F.2	Crypto-Asset Functionality	**Core functionality** LsSOL serves as a liquid staking token. Its primary function is to act as a transferable receipt for staked SOL, enabling holders to maintain liquidity while their SOL is locked in staking.

		Key functionalities include: **Value accrual:** LsSOL automatically accrues the staking rewards generated by the underlying SOL. This is reflected in its exchange rate against SOL increasing over time as rewards accumulate in the pool. **Transfer & trade**: LsSOL can be freely transferred between wallets and traded, allowing holders to sell or swap their staked position without waiting for unstaking periods. For example, holders may trade LsSOL on Solana DeFi markets or use it as collateral in lending protocols (subject to market availability). **Redeemability:** as described, holders can at any time redeem LsSOL for the corresponding amount of SOL via the protocol, thereby exiting the staked position. **Composition in DeFi:** LsSOL is designed to integrate into the broader ecosystem; holders can use LsSOL in decentralized applications, much like they would use SOL (for instance, to earn yield in liquidity pools or to facilitate trades) while still earning staking rewards. **Coverage:** by simply holding LsSOL, users receive the benefit of slashing protection (the token is indirectly backed by a coverage fund), although this is a protocol feature rather than a user-triggered function.
F.3	Planned Application of Functionalities	There are no deferred or yet-to-be-activated functionalities for LsSOL. All intended core features (staking reward accrual, transferability, redemption, etc.) are already operational.
A description of the characteristics of the crypto-asset, including the data necessary for classification of the crypto-asset white paper in the register referred to in Article 109 of Regulation (EU) 2023/1114, as specified in accordance with paragraph 8 of that Article		
F.4	Type of white paper	OTHR
F.5	The type of submission	NEWT

F.6	Crypto-Asset Characteristics	LsSOL is a liquid staking token that allows participants to stake their SOL while retaining liquidity and the ability to engage with Solana's DeFi ecosystem. When users stake their SOL, they receive LsSOL in return, representing their staked position and any accrued staking rewards. The total supply of LsSOL will be dynamic and determined by the number of users choosing to mint LsSOL by staking their SOL. As more users stake SOL, the total supply of LsSOL will increase proportionally. Conversely, when users redeem LsSOL for native SOL, the total supply will decrease. This mechanism ensures that the supply of LsSOL reflects the total amount of staked SOL in the protocol at any given time.
F.7	Commercial name or trading name	The Liquid Foundation
F.8	Website of the issuer	https://liquidcollective.io/
F.9	Starting date of offer to the public or admission to trading	2025-07-01
F.10	Publication date	2025-08-22
F.11	Any other services provided by the issuer	N/A
F.12	Identifier of operator of the trading platform	PGSL
F.13	Language or languages of the white paper	English

F.14	Digital Token Identifier	Not available
F.15	Functionally Fungible Group Digital Token Identifier	N/A
F.16	Voluntary data flag	false
F.17	Personal data flag	true
F.18	LEI eligibility	N/A
F.19	Home Member State	Ireland
F.20	Host Member States	Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Italy, Latvia, Liechtenstein, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden
Part G - Information on the rights and obligations attached to the crypto-assets		
G.1	Purchaser Rights and Obligations	**Rights of LsSOL holders** Holders of LsSOL have the following key rights by virtue of holding the token: **Right to redemption**: The holder can convert LsSOL back into the underlying SOL at any time (subject to the protocol's procedures), as detailed in I.07. This is the fundamental right attached to LsSOL – it represents a claim on a certain amount of SOL in the stake pool. **Right to staking rewards**: Holders are entitled to their proportional share of SOL staking rewards that accrue while their LsSOL is outstanding. These rewards are automatically reflected in the value of LsSOL (the token's SOL redemption rate increases over time). Essentially, holding LsSOL confers the benefit of ongoing yield from the Solana network. **Transferability**: The holder has the right to transfer or sell LsSOL tokens to

		third parties without restriction (aside from compliance gating for interacting with the protocol as noted). Upon any such transfer, all rights (redemption, etc.) inherent to the tokens pass to the new holder. LsSOL can be freely traded or used in transactions on the Solana blockchain, giving holders flexibility in managing their staked asset position. **Coverage benefit**: Although not a traditional "right" enforceable against the issuer, LsSOL holders receive the benefit of the protocol's slashing coverage. If a slashing event occurs affecting the stake pool, holders may be indemnified from the coverage fund (to the extent it covers losses). This provides an extra layer of protection compared to direct staking. **Obligations of holders** By holding LsSOL, there are no affirmative obligations (no required actions or additional payments). The main implicit obligation is that to redeem or interact with the protocol, a holder must comply with KYC/AML requirements. Holders should also be aware of and adhere to any legal obligations in their jurisdiction (e.g., tax obligations on staking rewards). Otherwise, holding or transferring LsSOL does not carry specific duties to the issuer or others.
G.2	Exercise of Rights and obligations	**Exercise of redemption right** To exercise the right to redeem LsSOL for SOL, a holder (or an integrator acting on their behalf) initiates a "withdraw" transaction via the Liquid Collective smart contract. The holder must use a whitelisted (verified) address to call the redemption function. Upon request, the protocol will either return SOL immediately (if available) or initiate an unstaking process. The condition precedent is passing KYC (addresses must be allowlisted); if already done, the process is trustless and on-chain. Withdrawals may be subject to Solana's network schedule (a normal unstaking takes ~2-3 days). Once processed, the SOL is transferred to the holder's wallet and the corresponding LsSOL tokens are burned. There are no fees charged for redemption by the protocol aside from potential network fees, and no minimum or maximum redemption amount per transaction, though very large redemptions might effectively take longer if unstaking is required. **Transfer/trade rights** To transfer LsSOL, a holder simply uses a Solana wallet to send the desired amount to another address (as they would with any SPL token). There are no special conditions – the token is standard and transactions settle in seconds. Trading on DEXs requires interacting with those platforms (subject to their rules), but again no restriction from the token's side. The holder should ensure the recipient (if they intend to redeem) can satisfy compliance checks. **Other rights conditions**

		If a slashing event triggers coverage, the process is automatic – affected LsSOL holders would be made whole up to coverage limits without needing to file claims (the coverage is baked into the protocol's accounting). In case of any dispute or issue, holders would contact the issuer via provided channels (email) and possibly go through dispute resolution, but no formal mechanism is defined in this document. All rights are exercised on-chain, by token operations, under the conditions set by the smart contracts and protocol policies.
G.3	Conditions for modifications of rights and obligations	The rights and obligations attached to LsSOL as described in this white paper reflect information available at the time of issuance. This white paper is issued by Kraken and does not constitute a commitment or guarantee by Liquid Staked Solana or any other party regarding future modifications. No promises, warranties, or assurances are made herein regarding future token functionality, and this section is provided solely for informational purposes.
G.4	Future Public Offers	N/A
G.5	Issuer Retained Crypto-Assets	N/A
G.6	Utility Token Classification	false
G.7	Key Features of Goods/Services of Utility Tokens	false
G.8	Utility Tokens Redemption	N/A
G.9	Non-Trading request	This white paper reflects a request to admit the token to trading.
G.10	Crypto-Assets purchase or sale modalities	N/A

G.11	Crypto-Assets Transfer Restrictions	Kraken may, in accordance with applicable laws and internal policies and terms, impose restrictions on buyers and sellers of these tokens.
G.12	Supply Adjustment Protocols	true
G.13	Supply Adjustment Mechanisms	None beyond core issuance/burning. LsSOL's supply is adjusted only in response to user actions (minting when new SOL is staked, burning when SOL is unstaked).
G.14	Token Value Protection Schemes	false
G.15	Token Value Protection Schemes Description	N/A
G.16	Compensation Schemes	false
G.17	Compensation Schemes Description	N/A
G.18	Applicable law	Any dispute relating to this white paper shall be governed by and construed and enforced in accordance with the laws of Ireland without regard to conflict of law rules or principles (whether of Ireland or any other jurisdiction) that would cause the application of the laws of any other jurisdiction, irrespective of whether LsSOL tokens qualify as right or property under the applicable law.
G.19	Competent court	Any disputes or claims arising out of this white paper will be subject to the exclusive jurisdiction of the Irish courts.
Part H – information on the underlying technology		

H.1	Distributed ledger technology	LsSOL is implemented on Solana. Solana is a public blockchain that uses a combination of Proof-of-Stake (PoS) and Proof-of-History (PoH) for consensus. This technology ensures that LsSOL transactions can be recorded, validated, and secured in a decentralized manner.
H.2	Protocols and technical standards	Solana Blockchain Protocol: LsSOL is minted as a standard SPL fungible token on the Solana blockchain and carries a Metaplex Token-Metadata account for name, symbol, and icon information, ensuring broad compatibility with SPL-enabled wallets and exchanges. The Liquid Collective stake-pool smart contracts are written with the Anchor framework and interact exclusively with Solana's built-in system and stake programs to execute deposits, withdrawals, and validator delegation. All transactions conform to Solana's runtime rules, including Ed25519 signature verification and rent-exempt account requirements. Creation and redemption of LsSOL therefore rely solely on canonical Solana program calls; no alternative consensus layers, side-chains, or proprietary bridging solutions are employed.
H.3	Technology Used	The LsSOL token uses the existing SPL fungible-token standard on the Solana blockchain.
H.4	Consensus Mechanism	Solana reaches consensus through Delegated Proof-of-Stake (DPoS) combined with Proof-of-History (PoH) for cryptographic time-stamping and Tower BFT, an optimized Byzantine-fault-tolerant voting protocol; elected validators rotate leadership every few hundred milliseconds, and super-majority voting finalises blocks within seconds.
H.5	Incentive Mechanisms and Applicable Fees	LsSOL relies on the native incentive structure and fee model of the Solana blockchain: validators are compensated with SOL inflation and transaction fees for securing the network, while each transaction (including the minting, transfer, or burning of LsSOL) incurs a minimal network fee payable in SOL. At the protocol level, Liquid Collective applies a service fee on staking rewards (not on principal or transfers); the fee is automatically deducted before rewards accrue to holders and is allocated to fund operating costs and the slashing-coverage treasury. No additional protocol fees are levied on deposits, transfers, or redemptions beyond those standard network charges.
H.6	Use of Distributed Ledger Technology	false
H.7	DLT Functionality Description	N/A

H.8	Audit	true
H.9	Audit outcome	The Liquid Collective protocol, including smart contracts leveraged by LsSOL, has undergone nine third-party security audits between July 2022 and November 2024. Outcome summary: Halborn (July 2022): All critical and high-severity issues were identified, remediated, and verified in the final report. Spearbit (Sep 2022 – Oct 2023, audits #02–#07): Iterative audits of protocol upgrades (TLC token, slashing-coverage mechanisms, withdrawal and redemption logic). All reported issues were addressed and resolved across successive reviews. Quantstamp (May 2024): No critical or high-severity vulnerabilities. Two medium-severity items fixed. Completion certificate issued. Certora (Nov 2024): Formal verification passed on the stake-pool and redemption modules. No high- or medium-severity bugs detected; minor informational observations acknowledged. Across all audits, no critical or high-severity vulnerabilities remain outstanding. Public reports and verification links: https://liquidcollective.io/security-audits
Part J - Information on the suitability indicators in relation to adverse impact on the climate and other environment-related adverse impacts		
S.1	Name	Payward Global Solutions Limited
S.2	Relevant legal entity identifier	9845003D98SCC2851458
S.3	Name of the crypto-asset	ls_solana
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.6	Beginning of the period to which the disclosure relates	2024-07-17
S.7	End of the period to which the disclosure relates	2025-07-17
S.8	Energy consumption	0.02 kWh/a
S.9	Energy consumption sources and methodologies	The energy 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.