

# elSOL: For the Effective Solana Network

White Paper v3.0.0

NFA / DYOR

**Abstract.** elSOL is a liquid staking token (LST) designed to redesign how stake is used on the Solana network and to make previously latent functions of stake usable, unlocking its potential.

On Solana, network bandwidth is preferentially allocated based on stake weight. However, there has been no way for users and projects to reflect their own stake on their traffic path, and the value of stake has largely been limited to staking rewards without being connected to network performance.

elSOL is designed to extend this. By staking SOL as elSOL, users can keep principal and earn staking rewards while also using that stake as SWQoS bandwidth for their own use or lending it to others for additional incentives.

In the elSOL pool, MEV-enabled validators operate with 0% commission, and 20% of their block reward profits are returned to the elSOL pool every epoch. This design enables high yields even without using SSP (SOL Staking Power).

By unifying staking rewards with SWQoS bandwidth incentives, elSOL moves stake beyond a simple investment and turns it into a practical resource that supports the foundation of the Solana network.

## 1. Background

### 1.1 Difficulty accessing SWQoS bandwidth

On Solana, transaction priority is determined by stake weight. Requests routed through RPC endpoints with more stake applied are prioritized by SWQoS. While this preserves stability, it creates a high barrier for individual or smaller users. Even if a user stakes SOL to validators or LSTs, there has been no way to directly apply that stake to their own RPC or application traffic. Running a validator to obtain SWQoS requires significant expertise and cost, so many developers and projects cannot fully utilize Solana's performance.



Some existing validators do not need SWQoS bandwidth. They may have stake but do not consume all bandwidth, and some privately lend it to RPC providers via bespoke contracts. Such deals are non-public, with terms and pricing varying by validator. Because there is no standardized market, both buyers and sellers struggle to find correct pricing and suitable counterparties. Ongoing configuration and maintenance also carry nontrivial cost.

As a result, the inherent value of stake is underutilized. SWQoS bandwidth—which directly affects performance—does not reliably reach those who need it and remains fragmented.

## **1.2 Non-liquid network resources**

Today, stake is treated as a “fixed deposit for rewards.” Funds remain inside the network and do not create new value for other users. This non-liquid structure reduces overall flexibility.

In practice, there are users who want bandwidth but do not run validators, and validators who run validators but do not need bandwidth. If value could flow between them, Solana’s communication efficiency and economics would improve. There is currently no mechanism to do that.

As long as stake and bandwidth remain separate, the network cannot realize its potential. A mechanism is needed to circulate stake as bandwidth.

## **1.3 Lack of a market and price opacity**

SWQoS bandwidth is a scarce resource tied to performance, yet there is no market to price and exchange it appropriately.

Some validators sign private contracts with RPC providers, but prices and terms are not public and transactions are limited in scope. Without clear benchmarks for “how much bandwidth a given stake provides,” transparency is low, reducing overall efficiency. Without fair price formation, participation remains limited and high-quality communication stays concentrated.



## 2. elSOL Objectives and Concept

elSOL is developed to redesign how stake is used on the Solana network and to make previously latent functions of stake usable.

While stake contributes to security, its amount also affects the priority of traffic paths. However, users holding stake have been unable to control their own bandwidth or directly influence their communication performance. The value of stake has been mainly limited to staking rewards and has not been leveraged for network performance.

elSOL addresses this asymmetry. Instead of treating stake as a static asset for rewards only, elSOL introduces a mechanism that treats stake as a dynamic resource for adjusting communication efficiency. When users stake SOL as elSOL, their stake links to Solana's SWQoS and can be applied to obtain bandwidth on the network or lent out to others.

This allows users to earn additional incentives by handling bandwidth as a network asset in addition to conventional staking rewards. The latent value of stake is unlocked, and those who need bandwidth can obtain it in the amounts they need.

## 3. elSOL Mechanism

elSOL is built on Solana's official staking pool program and operates as an extension of the existing staking system. Its design focuses on safety, efficiency, and transparency. Users deposit SOL as usual and, in addition to receiving staking rewards, can use functions to handle network bandwidth.

### 3.1 elSOL LST staking structure

elSOL is issued via Solana's official staking pool program. When a user deposits SOL, they receive elSOL of equivalent value. This token is a receipt for the deposited SOL, and its redemption value increases gradually as staking rewards accrue.

Deposited SOL in the elSOL pool is delegated to MEV-enabled elSOL validators operating with 0% commission. Each elSOL validator returns 20% of its block reward profits to the pool every epoch, which raises the overall yield of elSOL. This achieves both maximized staking rewards and stable operation while continuously acquiring stake and bandwidth.



### 3.2 SWQoS staking

On Solana, SWQoS determines traffic priority based on stake weight. elSOL leverages this, enabling users to actually handle bandwidth derived from the stake they provide.

When users stake elSOL, they can apply SWQoS bandwidth on ERPC in proportion to their stake. Users specify, in the management interface, which endpoint(s) to apply bandwidth to and how much. After configuration, the setting becomes effective from the next epoch, and the limit of the specified endpoint(s) is updated according to the applied stake. This does not re-delegate stake; rather, stake weight is referenced as bandwidth weight and reflected in SWQoS evaluation.

When using the shared SWQoS endpoint, the request rate (throughput) is determined by the amount of elSOL applied: 4.2 elSOL per 1 request/second (1 TPS).

Fractions are rounded down. The maximum applicable rate is capped by the current ERPC plan. Users can split their elSOL across multiple endpoints.

Example: With 10 elSOL, 2 TPS is available. It can be split as 1 TPS to shared endpoint A and 1 TPS to endpoint B. Settings can be changed later and usually update on an epoch basis.

Thus, elSOL converts staked SOL directly into SWQoS bandwidth and lets users flexibly decide where and how much communication performance to apply.

### 3.3 SSP (SOL Staking Power) staking

If users do not use SWQoS bandwidth themselves, they can sell SSP—issued based on their staked elSOL (1elSOL staking = 1SSP)—on the SWQoS market. Sellers set a desired VLD rate; when other users/providers purchase at that rate, the sale is executed.

If a sale is executed, the stake provider receives VLD per epoch according to the set rate and the amount sold. If a sale is not executed, VLD from usage of the shared SWQoS endpoint is still distributed as shared rewards. This shared reward is distributed to SSP providers in proportion to the share of SSP offered on the market that remains unused.

This allows stake providers to earn rewards even without directly consuming bandwidth, and buyers can obtain the bandwidth they need without private validator contracts. SSP makes stake-derived bandwidth liquid and matches supply and demand via market mechanics.



## 4. VLD Token Mechanism

VLD is used to trade bandwidth in the SWQoS market. Buyers use VLD to purchase SSP; bandwidth providers receive VLD as rewards. This enables stake-based communication resources to be exchanged on Solana at appropriate prices.

VLD is minted only as needed by actual network demand. Supply adjusts dynamically with demand and is not over-issued, reducing the risk of extreme price drops. VLD also has a maximum supply cap. If demand continues to grow toward the cap, additional issuance is constrained and price may rise.

Under this model, both VLD's circulating amount and price reflect demand for SWQoS bandwidth. As more bandwidth is used, demand for VLD increases; when usage recedes, price stabilizes accordingly. Through VLD-denominated trades, the market autonomously discovers appropriate prices each epoch; no single party sets prices.

For details on VLD's full design, its relationship with Validators DAO, and distribution methods, please refer to the Validators DAO white paper. Here we have outlined only the parts relevant to elSOL operations and the SWQoS market.

## 5. Conclusion and Next Steps

elSOL presents a new way to use stake on Solana. By redesigning stake—traditionally a source of rewards—into a resource that also affects communication performance, elSOL adds a new value layer to Solana's staking model.

With elSOL, users earn staking rewards and can either apply their stake as SWQoS bandwidth or offer it as SSP on the market. Stake thus extends from a fixed reward source to a liquid asset that links network performance with economic activity.

Introducing elSOL and the SWQoS market changes bandwidth from a closed, bilateral arrangement to a system where anyone can obtain or supply the amount they need. This improves network-wide communication efficiency and provides stable, transparent incentives for validators, RPC providers, developers, and users.

Next, we will launch a beta of the SWQoS market and validate bandwidth trading and reward distribution behavior using real usage data. The beta is planned for the first half of 2026 for both validators and users. A public release is planned for the second half of 2026 to roll out elSOL and the SWQoS market across the Solana network.



By enabling efficient use of stake and fair allocation of bandwidth, elSOL functions as a foundation for Solana's sustained growth and a more stable, transparent operating environment.

## Reference



Token Address: ELSol1owwMWQ9foMsutweCsMKbTPVBD9pFqxQGidTaMC

Token Name: Enhanced Linkage SOL

Tick: elSOL

### **elSOL Fee Structure:**

Rewards Fee: 0.00 %

SOL Deposit Fee: 0.00 %

SOL Withdrawal Fee: 0.10 %

Stake Deposit Fee: 0.00 %

Stake Withdrawal Fee: 0.10 %

\*Setting withdrawal fees is recommended to prevent spam and malicious activities.



## elSOL Staking Rewards Mechanism

elSOL staking rewards accumulate through Solana's official staking pool program, working as follows:

1. When a user deposits SOL into the selected staking pool, they receive pool tokens (elSOL) representing their proportionate stake.
2. The staking pool delegates these funds to chosen validators.
3. elSOL token value increases as rewards are added to the total SOL within the pool. This mechanism ensures automatic accumulation of staking rewards for elSOL holders, increasing their value over time.

### Example:

Initial deposit: User stakes 100 SOL and receives 100 elSOL tokens, initially equal to 1 SOL each.

After one year, assuming an annual percentage yield (APY) of 7%, the total SOL in the pool increases to 107 SOL. Since the total elSOL token supply remains constant, the value of 1 elSOL token rises to 1.07 SOL.

Upon withdrawal, the user redeems 100 elSOL for 107 SOL.

## Related Links

elSOL: <https://elsol.app/>

Validators DAO: <https://dao.validators.solutions/>

ERPC (Solana Enhanced RPC): <https://erpc.global/>

Validators DAO Official Discord: <https://discord.gg/C7ZQSRcKYR>

Solana Stake Pool Program: <https://spl.solana.com/stake-pool>

Solana SWQoS: <https://solana.com/ja/developers/guides/advanced/stake-weighted-qos>

