## Background

stETH/wstETH has limited availability outside of ETH L1. Currently, the primary liquidity sources for stETH are:

ETH L1 -

- Lido deposit contract (buy only)
- Curve
- Balancer
- Sushiswap
- 1inch

Terra -

- Terraswap

Solana -

- Orca

While Ethereum is suitable for buying or selling large amounts of stETH with the deepest liquidity pools, transaction fees can significantly eat into returns for small purchases. The figure below gives estimates on the impact of fees at various trade sizes.

[

image

1520×242 22.2 KB

](https://europe1.discourse-cdn.com/business20/uploads/lido/original/1X/5c14422846ca57464267dfea2185a71b0a7d9adf.png)

Source: Google Sheet

Solana and Terra both offer very low transaction fees, but they are less familiar to many users than EVM based chains. Solana and Terra also use ETH far less within their respective defi ecosystems, which could negatively impact adoption of stETH on these chains.

## EVM Chain Options

There are several L1 and L2 platforms where stETH could be integrated and potentially increase access for retail users. ETH is already a central asset across each of these chains so stETH could see an easier path to adoption.

L1 / Sidechain:

- Polygon
- xDAI
- Avalanche
- Fantom
- many others

L2:

- Arbitrum
- Optimism
- Boba
- zkSync (?)
- Starkware (?)

It probably doesn’t make sense to encourage liquidity on all of these platforms (at least initially), but choosing a few of the

highest impact EVM L1/L2s could improve adoption and help cement Lido network effects.

## Liquidity Strategy

There are a few key decisions to make about how to encourage cross chain stETH liquidity.

(1) Where should Lido support stETH liquidity (which L1/L2s, which DEXes)?

Curve is available on most of the chains listed above. This is probably the simplest and most capital efficient platform for stETH liquidity. Liquidity on Optimism could use Uniswap v3 concentrated liquidity, which is somewhat more complicated than Curve but still capital efficient. Other platforms would need to use XYK liquidity pools which requires significantly more capital.

IMO the best initial platforms to support stETH would be Arbitrum, Polygon, Avalanche, Fantom, and xDAI. Each of these chains has Curve support, and they all have active lending markets which could become additional integration targets for stETH in the future.

Optimism and zkrollups should also be a high priority over the medium term but have maybe a bit less opportunity in the short term.

(2) How much liquidity is needed?

One way to gauge this is by setting a maximum target transaction cost across various trade sizes, and ensuring enough liquidity to support trades up to the size where ETH L1 becomes more efficient.

So for example if we wanted to target less than 1% transaction cost across trade sizes, we can see this is already well supported for sizes above $10,000 on ETH L1. So in this case we would target enough liquidity for less than 1% market impact on a $10k trade on each chain we choose to support. For typical xyk AMM like Uniswap v2, this would require about $2 million in liquidity. But for stableswap AMM like Curve, this could likely be reduced to $100-200k.

(3) How to build liquidity?

There are two primary options: liquidity mining or PCV (protocol controlled value).

PCV is capital intensive, but Lido has significant ETH resources which it could deploy for this purpose. Liquidity mining can have a larger short term impact on market depth, but increases operating cost with no certainty that liquidity would become self sustaining over time.

Assuming $200k target liquidity per chain across 5 chains, this would be $1 million in ETH capital committed to own liquidity as PCV (slightly more than 1% of Lido's ETH reserves). Alternatively, if we run liquidity incentives with 10% target yield, total liquidity mining costs would be $100k per year across supported chains, or roughly ~2,500 LDO per month at current prices.