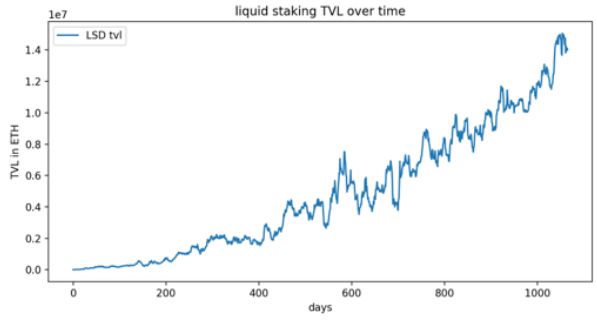
Rocket Pool – Level 2 Report

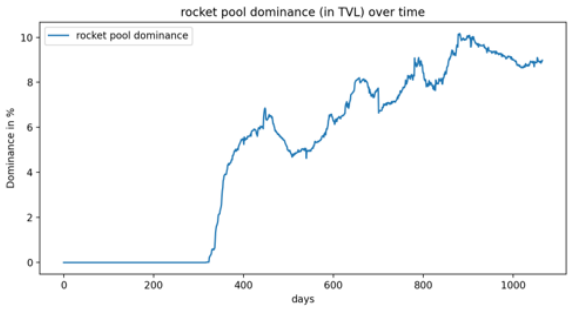
Key Insights

- Rocket Pool is the base layer protocol for decentralized and trustless Ethereum staking.
- The protocol uses a dual token model: rETH and RPL.
- Rocket Pool is governed by the RPL token, which is used for voting on proposals and protocol upgrades
- Rocket Pool issues a liquid stacking Ethereum token: rETH
- Two differents DAO are leading the protocol: pDAO (protocol DAO) and oDAO (oracle DAO).
- Rocket pool is providing two different types of services. Users can run a node to become “Node operator” or only stake their ETH in “deposit pools”.
- Minimum deposit to get Ethereum staking rewards is 0.01 ETH into “deposit pool”.

Analyst Thesis

Liquid staking derivative has been one of the main narratives in DeFi the last years. According to DeFillama, this is the category in DeFi with the highest TVL inside protocols. Moreover, this sector is still growing even though tough market conditions.





As the graph on the left show, the market keeps continuing attracting value over time. At the same time, Rocket Pool's TVL dominance in this market has been growing to reach around 8.5%. The dominance has been quite constant since more than one year now.

Since the launch of the project on Ethereum liquid staking, it seems that being the most decentralized project(in LSD) is not the best feature to attract liquidity.

Indeed, Lido trusts the first place in this market due to his first mover advantage. Moreover, CEX as Coinbase or Binance have rapidly attracted liquidity, which shows that users still trusts more centralized services for the moment.

Furthermore, FRAX is offering better yield than Rocket Pool right now which could led to drag some liquidity towards FRAX ecosystem in the future.

Finally, even though Rocket Pool is still an interesting investment case in Liquid staking derivative, I would consider Lido and Frax as better investment opportunities.

Protocol Overview

Rocket Pool is a decentralized autonomous organization (DAO) that offers a decentralized staking solution for Ethereum (ETH). Rocket Pool is designed to cater to two main user groups; those that wish to participate in tokenized staking using rETH using as little as **0.01 ETH** and those that wish to stake ETH and run a node in the network to help generate a higher ROI than staking outside of the protocol due to commissions earned.

The governance of Rocket Pool is facilitated by the RPL token, which is used for voting on proposals and protocol upgrades. The project has a strong focus on security, having undergone multiple audits to ensure the safety of user funds.

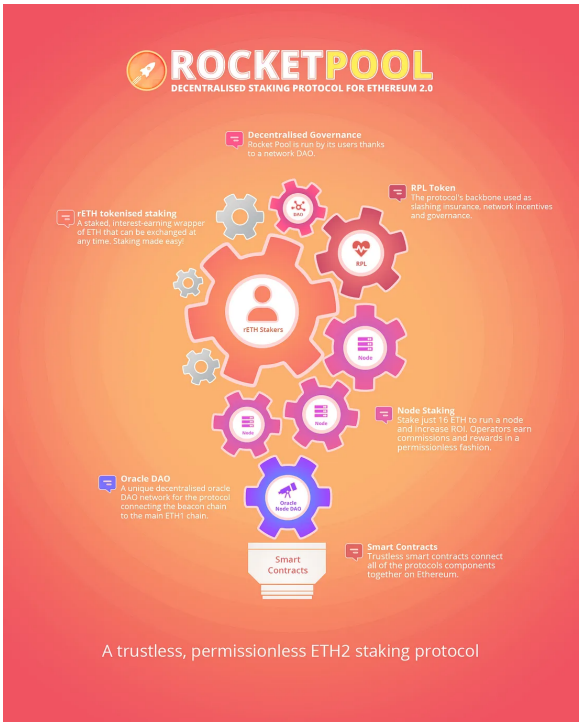
Rocket Pool has a decentralized network of node operators, with over 3,000 nodes. This contrast with the more centralized approach of competitors like Lido DAO.

Advantages of Rocket Pool:

- Reduce entry barrier for Ethereum staking.
- Most decentralized LSD network: over 3,000 node operators.

- Integration of rETH in several DeFi platforms.
- Strong focus on security with multiple audits.

Protocol Architecture



From a technical standpoint, the core technical infrastructure of the protocol is relying on four key elements: **Deposit pool, Minipool, RPL and rETH**.

Deposit pool

- This pool allows any users to deposit ETH tokens.
- Users get ETH staking rewards proportionally to their ETH deposit.
- The minimum deposit is 0.01 ETH.
- Max ETH allocation on a single Deposit pool is 24 ETH.

Minipool

- To become a Node operator, users need to deposit 8 ETH in this pool.
- This pool also contains RPL insurance to cover possible slashing.

RPL

- This the governance token of the platform, it's a regular ERC-20 token.

rETH

- This is the interest-earning wrapper of ETH that can be exchanged at any time.

Protocol Roles

Inside Rocket pool platform, they are several actors that contributes to the activity of the protocol:

Node operators

- These nodes are directly communicating with Validators from Beacon Chain.
    - Users has to deposit 8 ETH into Minipool + At least 10% of ETH amount in RPL
    - The collateral in RPL is used as insurance in case of node slashing.
    - The collateral ratio is capped between 10% and 150%.

Oracle Nodes (Watchtower nodes)

- They run the same smart node software than node runners but there are others conditions. These conditions are called "**duties**" and they contribute to avoid malicious nodes:
    - Minipool Balance validators: The performance of these validators needs to be monitored so the protocol can calculate the performance of all the validators in the decentralised network and allow users holding rETH to exchange it for ETH + rewards at the correct exchange rate.
    - RPL:ETH ratio: To make sure this amount of RPL is correct, the current RPL:ETH ratio must be reported and agreed upon by > 50% Oracle DAO members.

Protocol DAO governance

- This DAO is responsible for the direction that the protocol is taking.

- It uses RPL as governance token and voting power.

Oracle DAO governance

- Leads by the members. They can choose to change some parameters of this DAO on the consensus mechanism and so on.
- They can also make proposals about parameters in the protocol.

Treasury

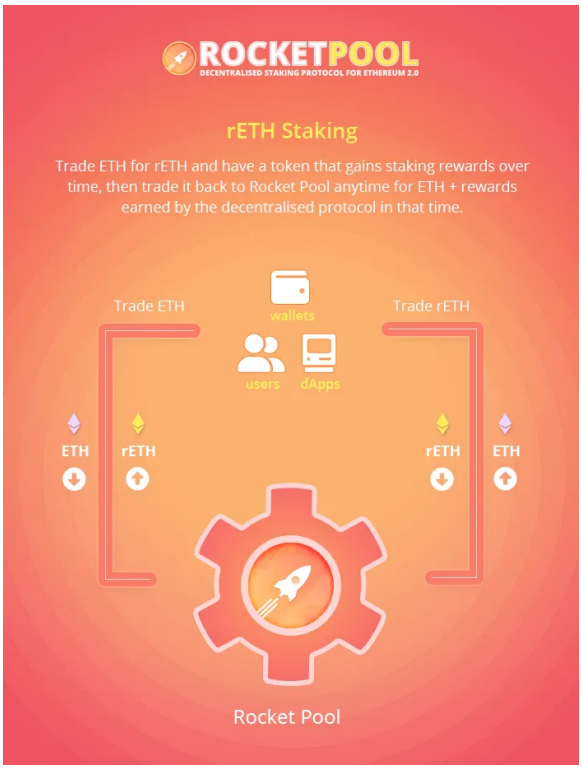
- The treasury wallet has been set up in case of black swan event (hacks, depeg rETH:ETH,...).
- It pays also external costs of DAOs

Protocol Features

Liquid staking derivative

Users who stake they ETH get rETH. It's a liquid assets that can directly be used in DeFi ecosystem.

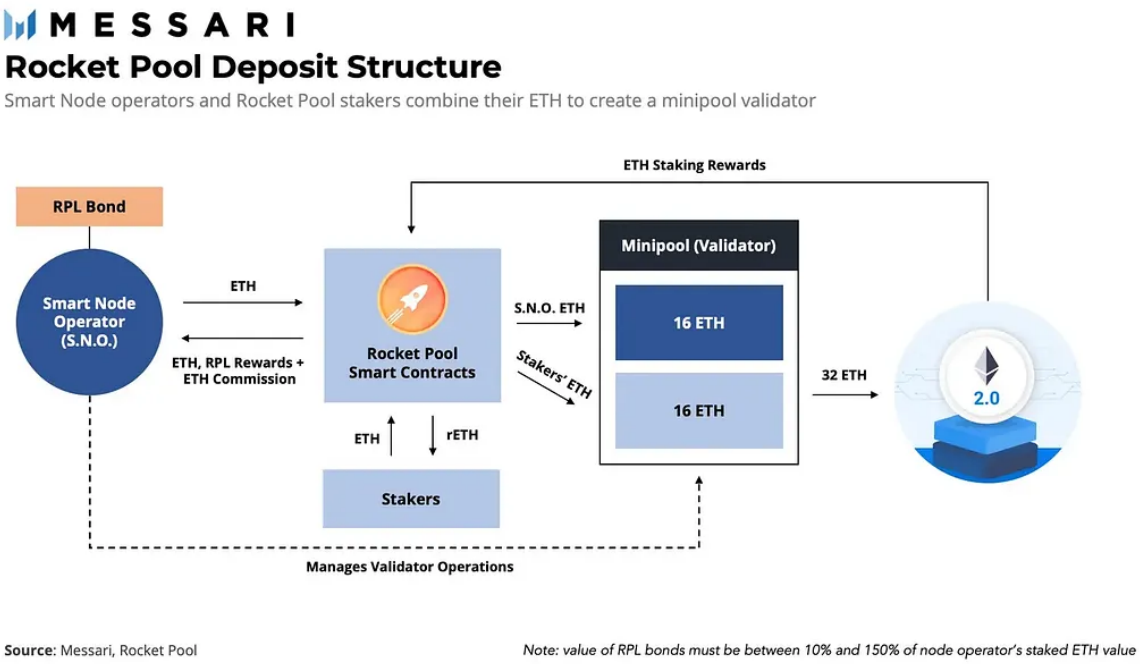
- It will automatically accruing staking rewards. Thus, the ratio between rETH/ETH depends on Rocket Pool's nods rewards.
- rETH is fully composable in the wider DeFi landscape, while accruing value from ETH earned through staking
- Depositing ETH and receiving rETH can be done in a single transaction by a variety of different user groups, be it individuals, dApps, exchanges, wallets



Node staking

Node stakers are getting a higher ROI than rETH holders. Moreover, they are charge-free for running a node.

- The protocol will assign 24 ETH from those in the rETH pool to make up the rest.



*Messari did this scheme before Atlas update. Now it can be 8 ETH (Minipool) and 24 ETH (Deposit pool)

Protocol Ecosystem

Rocket Pool decentralization oppportunity:

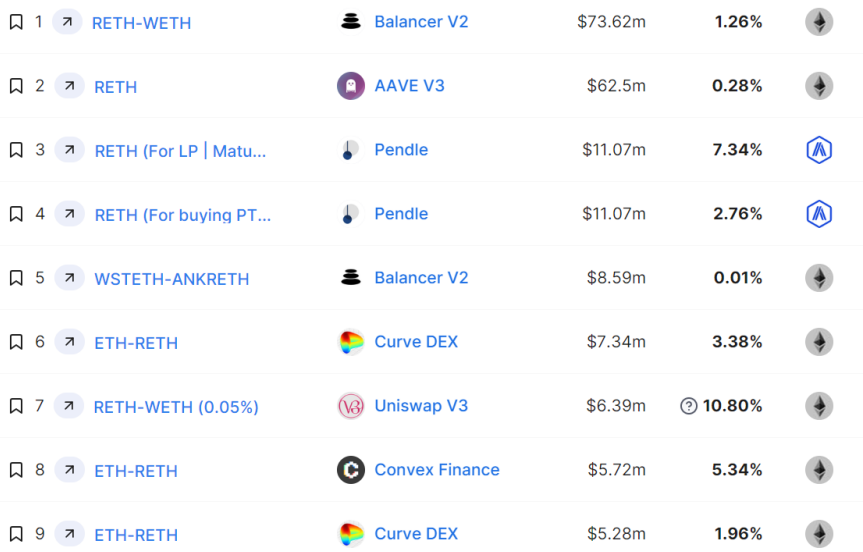
As a dApp, it's possible to integrate directly into Rocket Pools smart contracts to stake ETH that dApp might hold. dApp will instantly receive rETH (a tokenised staking deposit) back when depositing which can be used as dApp wishes. It's then possible for users to have staking in a decentralised dApp using a decentralised staking network.

As a SaaS (Staking as a Service) provider, the main goal is to maximise returns for your users. A product could be to pin up a few smart nodes in the Rocket Pool network and put ETH to work earning staking rewards + extra commissions from users in the Rocket Pool network for this service.

As a wallet or DEX, one of the service could be to give to users the ability to stake their ETH without leaving. By writing a smart contract that can manage depositing ETH into Rocket Pool on wallet's users behalf and then receiving rETH back instantly, users won't have the need to use an other service.

There are lots more possibilities, Rocket Pool is a permissionless smart contract based staking network, anyone can plug into it.

DeFi Integration

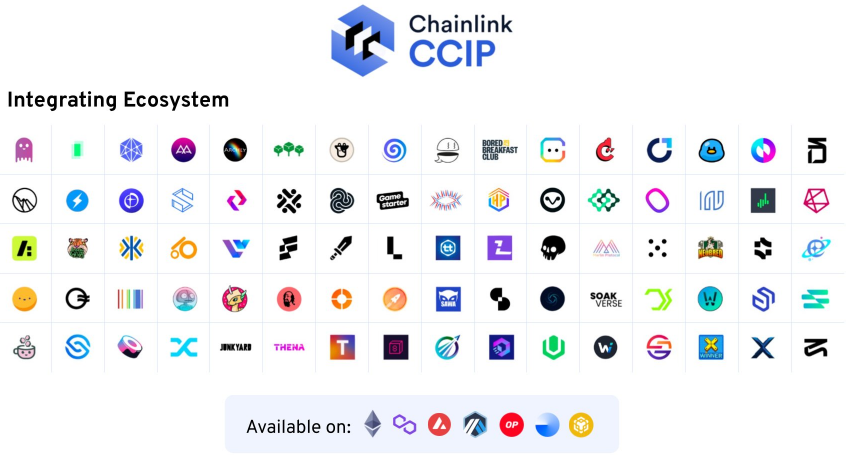


1	RETH-WETH	Balancer V2	$73.62m	1.26%
2	RETH	AAVE V3	$62.5m	0.28%
3	RETH (For LP | Matu...	Pendle	$11.07m	7.34%
4	RETH (For buying PT...	Pendle	$11.07m	2.76%
5	WSTETH-ANKRETH	Balancer V2	$8.59m	0.01%
6	ETH-RETH	Curve DEX	$7.34m	3.38%
7	RETH-WETH (0.05%)	Uniswap V3	$6.39m	10.80%
8	ETH-RETH	Convex Finance	$5.72m	5.34%
9	ETH-RETH	Curve DEX	$5.28m	1.96%

As the image above is showing, rETH has been integrated to most blue chips in DeFi. This integration allows advanced users to take advantage of DeFi legos to generate extra yield from their original ETH staking.

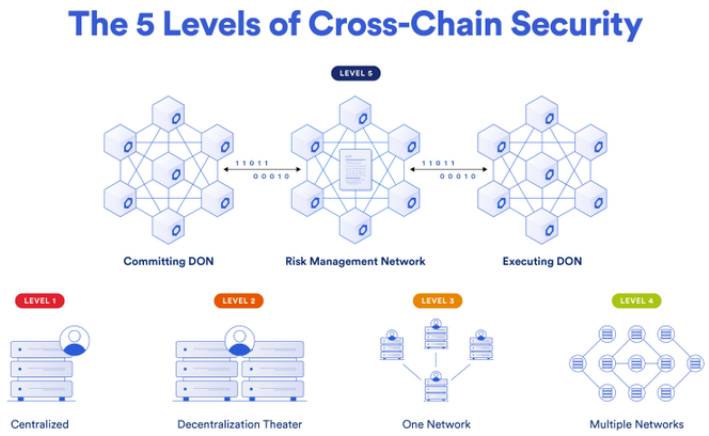
Chainlink integration

As announced by Chainlink in this tweet, Rocket pool has joined the CCIP ecosystem:



CCIP is at the forefront of on-chain finance and the asset tokenization market.

Swift, Chainlink, and more than a dozen financial institutions successfully demonstrated a secure and scalable way to transfer tokenized assets cross-chain using CCIP.



With its cutting-edge system design, featuring multiple layers of decentralization & active risk management, CCIP offers unrivaled level 5 security to unlock the cross-chain economy for both Web3 protocols & the world's largest financial institutions.

Team

The Rocket Pool team is composed of experienced professionals from the blockchain and DeFi space. Key members include:

David Rugendyke - Founder & CTO: David has over 18 years commercial experience as a senior developer with a computer science background and started designing Rocket Pool in late 2016. He is currently committed to developing Rocket Pool full time as the chief technology officer.

Daren Langley - General Manager: Darren has over 18 years commercial experience, he has managed and mentored development teams, designed application architecture, and delivered exciting digital products for government, financial services, blockchain services, and more.

Kane Wallman - Senior Solidity Developer: Kane has over 15 years experience in web and application development. In 2017, the Ethereum revolution caught his attention and he has been developing smart contracts and their supporting infrastructure ever since

Nick Doherty - Senior Blockchain Engineer

(24) Nick • | LinkedIn

Joe Clapis - Senior Blockchain Engineer

no Linkedin

Governance

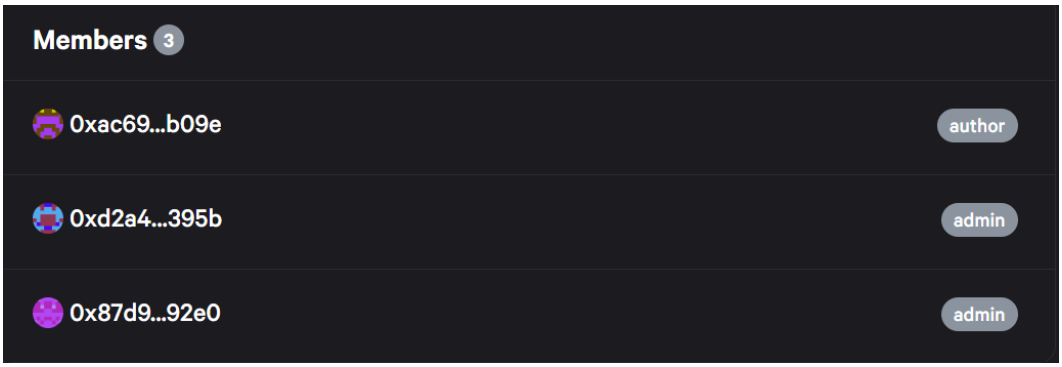
Protocol DAO (pDAO)

The Rocket Pool Protocol DAO is responsible for shaping the direction of the protocol and is run by RPL governance. Node operators' effective staked RPL conveys pDAO voting power via a square root modifier.

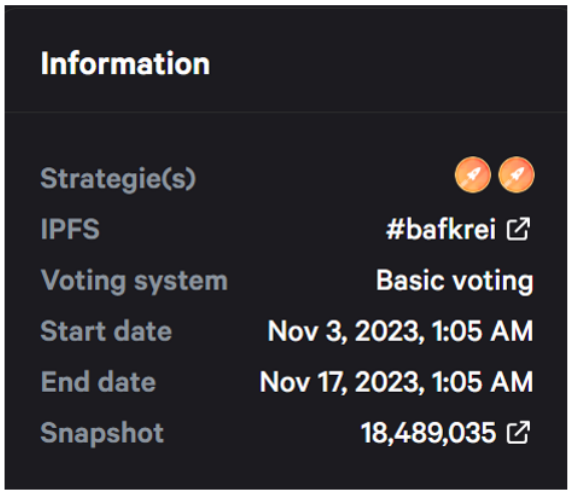
New Rocket Pool Improvement Proposals (RPIP) can be made and voted on by Node Operators within Rocket Pool. All the proposal can be followed here: https://vote.rocketpool.net/

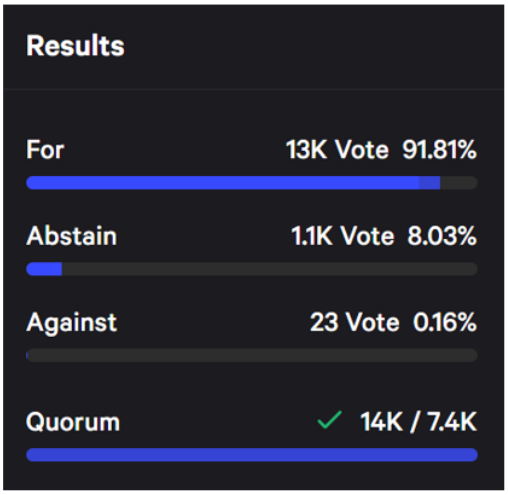
Process:

- Any proposal can be made by these three addresses:



- 14 days of voting occur right after the proposal has been made.
- The proposal needs at least a quorum of 50% to be accepted. An example below:





Observation: Interesting to see that there are only 3 wallets that are able to make a proposal. Since Rocket Pool is really into decentralization, every proposal is first discussed on the forum. if there is a “quorum” about some proposal then one of the wallets can turn it into a “real” proposal where RPL holders can vote.

Oracle DAO (oDAO)

Oracle nodes that make up the Oracle DAO are largely the same and run the same smart node software. What makes these nodes special is an on-chain DAO where members perform extra duties for the protocol and are rewarded for doing so.

These decentralised duties are comprised from a variety of beacon chain oracle tasks. These duties have been already in the “Project Role” part.

The Oracle DAO consists of less than 20 members from peers in the community, ecosystem and industry. It operates entirely as its own decentralised DAO through on-chain governance that can be audited by anyone. Here is the not exhaustive list of members:

- Lighthouse Beacon Chain
- Nimbus
- Prysm
- Etherscan
- Beaconcha.in
- Consensus Codefy
- BlockDeamon
- Staked
- Blockchain Capital
- Bankless
- Superphi
- Fire eyes
- CryptoManufuktur
- Rocket Pool

Moreover, there has been a recent announcement where Coinbase Venture has joined the members of the DAO.

However, it’s not that simple to enter into this community. To be part of Oracle DAO, a vote has to be done between all members and at least 50% has to agreed to let a new comer integrate the DAO.

Tokenomics

General Metrics (17/11/2023)

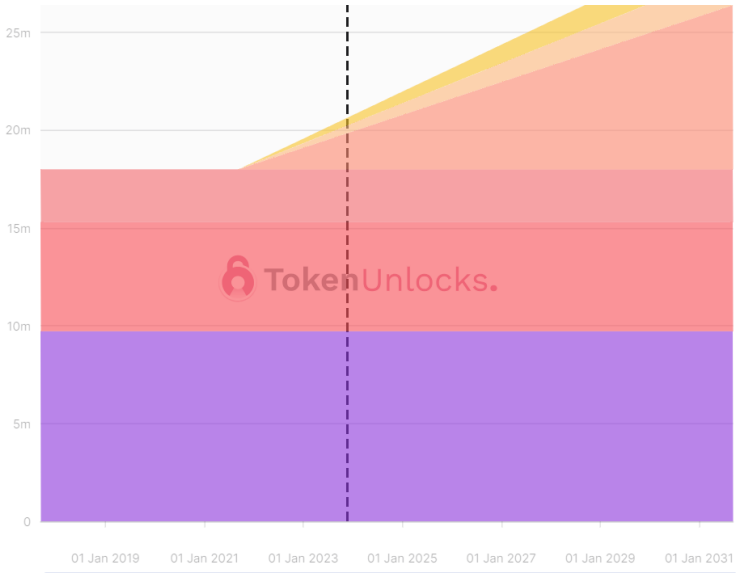
RPL Price	**$27.52**
Marketcap	**$548,081,586**
Fully Diluted Marketcap	**$548,081,586**
Circulating Supply	**19,842,347**
Total Supply	**19,842,347**
Volume (24h)	**$5,183,175**
TVL	**$2,248,312,893**
Market Availability	Binance, Coinbase, Kraken, Gate, Okx

Initial distribution

Allocation	Amount	Description
Pre-sale Investor	9.72m	Fully unlocked at TGE
Rocket Pool Team	2.70m	Fully unlocked at TGE
Public Sale	5.58m	Fully unlocked at TGE

Initially, 18M of RPL has been distributed over Pre-Sale investors (54%), Public sale (31%) and Rocket Pool Team (15%).

Inflation mechanism



Rocket Pool's team has settle an inflation annual rate of 5%. Thus, it expected to have close to 30M RPL in circulation over the next 10 years.

This inflation is distributed as follow:

- Node operators: 70%
- Oracle Node: 15%
- Treasury: 15% (50% are for incentives/ 30% for grants/ 20% for reserve)

New RPL tokens are emitted every four weeks.

Collateralization of Node operators position

RPL is used like an insurance model. Nope operators has to deposit at least 10% of the ETH amount staked. The collateral ratio is between 10 to 150%.

Having a lower boundary for Collateralization set a floor supply of RPL which will be at least of 10% of ETH staked as Node op. Moreover, the circulation supply is the same as the total supply since every locked tokens has been released during TGE.

Observation:

First observation is that RPL needs to be inflationary. Indeed, it's needed to get incentive for node operators (get rewards) and retain them as validators in the protocol.

But can RPL really serve as a good collateral asset? Well, hard to say. This is because Rocket Pool distributes all of its commissions to its node operators and funds its operations through the emission of RPL tokens. While this strategy may not be the most financially robust, it does make Rocket Pool an appealing choice for validators as it offers a higher yield.

However, if the value of RPL were to experience a significant drop due to high inflationary rewards and insufficient value accrual, node operators would need to continuously purchase RPL to meet their collateral requirements. This could result in capital inefficiency, and the losses in RPL could undermine confidence in the system, discouraging potential node operators from participating.

Yield calculation as Node operator

Below the calculation with an example:

Calculation:

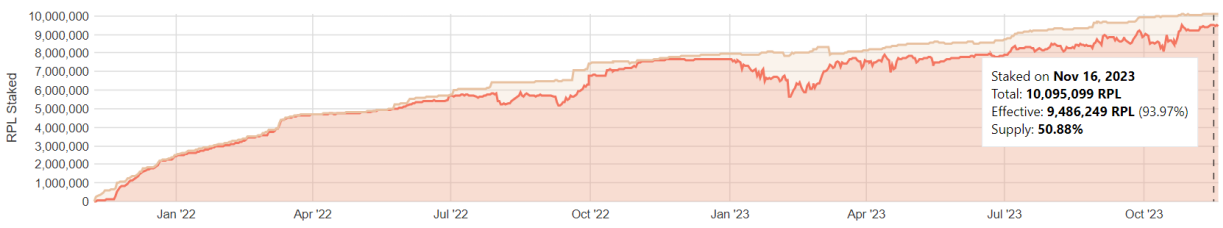
```
RPL Return = (Your RPL Staked / Protocol RPL Staked) * (RPL Supply * Inflation * Node Operator Share)

10.97 = (150 / 9500000) * (19,842,347.46 * 0.05 * 0.7)
```

Since the last Inflation and Node Operator Share are constants, the ways to maximize the return for node investors are:

- getting a high share of Protocol RPL staked.
- letting the supply increasing through years and then stake.

However, if even though this would make sense from a mathematical point of vue, the reality could be different. Indeed, let's take a look to the amount of staked RPL over the circulating supply:



As the graph shown, the staked ratio (currently at 50.88%) has been increasing since the beginning of 2022. Thus, it will be harder and harder for new node operators to get a high portion of the Protocol RPL Staked since this number continuously increasing.

Moreover, even though RPL's supply could double, RPL's price could be cut in half which would give the exact same return to Node Operators.

Finally, **Effective RPL Staked** is a metric that measures how much of the staked 10,095,099 RPL is within the effective collateral range of 10%-150% across all of the node operators' nodes. Currently, 9,486,249 / 10,095,099= 93.97%.

10%-150% staked RPL collateral is the range at which node operators can earn RPL rewards. For each 8 ETH minipool, this range is 2.4 ETH worth of RPL to 12 ETH worth of RPL (i.e., 10% of borrowed 24 ETH to 150% of the operator's own staked 8 ETH). For each 16 ETH minipool, this range is 1.6 ETH worth of RPL to 24 ETH worth of RPL (i.e., 10% of borrowed 16 ETH to 150% of the operator's own staked 16 ETH).

rETH

Rocket Pool incorporates several mechanisms and key features to ensure a stable and reliable staking experience for users while maintaining the desired "peg" between rETH and ETH. One crucial mechanism is the use of in-house oracles. These oracles monitor network metrics, such as the true ETH:rETH ratio, and report this information to the deposit pool contract. This ensures that users always receive the full value of their rETH when they convert it back to ETH, regardless of market conditions.

Another significant mechanism employed by Rocket Pool is the utilization of liquidity pools. These pools provide liquidity for users who wish to trade their rETH back to ETH. They are managed by a set of permissioned operator nodes that are required to hold a specific amount of ETH and RPL as collateral. This collateralization adds an extra layer of security for users. Additionally, the deposit pool contract is designed to automatically distribute funds to node operators as necessary, and there are penalties in place to deter malicious behavior by these operators.

Rocket Pool's rETH is can be mostly found on DEXs instead of lending pools. Balancer and Aura are the main protocols that investors chose to provide rETH

liquidity. Among all the yield farming strategies, liquidity provision is the most accessible and thus the dominant strategy chosen by rETH owners. These pools boost the yield generated from staking ETH with token incentives and allow users to easily opt in and out of their positions

Market Analysis (18/07/2023)

Decentralized competitors:

Lido's stETH has established itself as the leading player in the Liquid Staking Derivative (LSD) ecosystem, thanks to its strong liquidity and integration with popular DeFi platforms like Curve and Aave. Its first-mover advantage and market dominance make it difficult for competitors to challenge its position.

Frax's sfrxETH offers the highest yield among all ETH LSDs, making it an attractive choice for investors seeking maximum returns.

Centralized competitors:

Coinbase's cbETH benefits from the trust and large user base of Coinbase, appealing to both newcomers to the crypto space and institutional investors. This gives cbETH an advantage in terms of user adoption.

A new comer this year was the Binance staked ETH. It’s the third TVL in liquid staking and as Coinbase, the token benefits from Binance’s image in the crypto area.

Rocket Pool vs the market:

Rocket Pool is the second largest LSD protocol, with 685,168 ETH staked since its launch. However, it faces competition from cbETH and stETH. cbETH, despite being the most centralized product in the market, has over 2 million staked ETH due to its association with Coinbase. On the other hand, stETH, offered by Lido, is the market leader with nearly 9 million staked ETH, thanks to its operational efficiency and integration with DeFi platforms.

Rocket Pool differentiates itself by emphasizing node operator diversification, in contrast to Lido's approach. Lido controls a significant portion of staked ETH with only 38 node operators, while Rocket Pool has a smaller share of staked ETH operated by approximately 2,500 individual node operators.

However, Rocket Pool faces a primary disadvantage compared to its competitors, particularly in terms of capital efficiency. Capital efficiency has been a driving factor behind the substantial growth of stETH and cbETH, as these LSDs can be minted 1:1 for the underlying ETH deposit. Rocket Pool is addressing this issue through LEDB8, aiming to lower capital requirements. Capital inefficiencies have been a significant hurdle in attracting new validators to Rocket Pool and hindering faster growth.

	Lido DAO	Rocket Pool	Frax Finance
TVL	$17,950,000,000	$2,310,000,000	$580,000,000
Marketcap	$2,231,254,302	$561,435,533	$589,020,827
Revenue (YTD)	$70,880,000	no data	$1,690,000
Marketcap/TVL	0.12	0,2430	1.01
Marketcap/Revenue	31.47	no data	766.38

Financials:

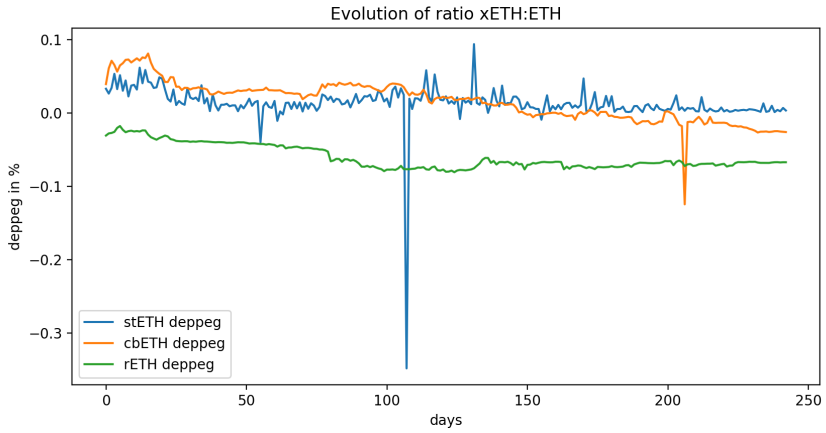
- Lido DAO has the highest total value locked (TVL) at around $17.95 billion, compared to Rocket Pool's $2.31 billion TVL and Frax Ether's $580 million.

Name	1d Change	7d Change	1m Change	TVL
1 Lido 5 chains	+1.41%	-3.68%	+21.15%	$17.957b
2 Rocket Pool 1 chain	+1.01%	-2.60%	+26.50%	$2.31b
3 Binance staked ETH 2 chains	+1.04%	-3.66%	+19.47%	$1.519b
4 Frax Ether 1 chain	+1.15%	-3.09%	+26.27%	$580.19m
5 Coinbase Wrapped Staked ETH 1 chain	+1.25%	-2.19%	+21.37%	$405.3m

- Lido and Frax takes a 10% fee from staking rewards and Rocket Pool takes 15%.
- Rocket Pool has a unique token model with RPL used as collateral by node operators. This provides additional revenue streams beyond just staking fees.

Market Activity:

- Lido's stETH isn't the most liquid staked ETH derivative the last days. Indeed, even with $9.64 million daily trading volumes across major exchanges, Rocket Pool's rETH has around $30.3 million daily volumes. Meanwhile Frax Ether' 24h volume is around $2.24 million.
- Pegged xETH:ETH:



As the graph shown above, in absolute values and even though a huge spike, Lido with stETH has the most stable pegged token with an average deppeged of 0.0244%. Then it's cbETH with a deppeged of 0.0249% and rETH with 0.259%. Moreover, it's interesting to notice that overall, cbETH and stETH has a positive depegged, which could be possible for holders while rETH has a negative deppeged.

On-Chain Data:

- Lido has the largest number of depositors at over 141,000. Rocket Pool has around 11,000 while Frax Ether has under 1,800 depositors.
- Lido's node is the largest validator on Ethereum with over 9 Million ETH staked. Rocket Pool runs multiple smaller nodes totaling around 685,000 ETH. Frax Ether's node has around 200,000 ETH staked.

Observation: Lido clearly dominates the derivative market in terms of financial metrics with its stETH token. However, Rocket Pool and Frax Ether aims to be more decentralized and cater more towards smaller protocol-focused stakers.

Roadmap

There is not a Roadmap per se as Rocket Pool functions through a DAO (see proposals here, also here to get some insights of the ideas of the community).

In May 2023, Rocketpool made an important announcement about integrating with the Layer-2 rollup called zkSync Era. This rollup is currently the third largest in terms of total value locked, following Arbitrum and Optimism. What sets zkSync Era apart from other rollups is that it is based on zero-knowledge (ZK) proofs, making it compatible with the Ethereum execution environment, which is crucial for deploying smart contracts and decentralized applications (dapps).

An other major improvement in coming is the **RPIP-13.** It will introduce the new concept of “supernode”.

Supernodes will allow 4 entities to come together to fulfil the requirements of running a set of Rocket Pool minipools. Those are:

- Supernode operator who is the controlling entity for the SaaS business
- RPL capital providers who provide the RPL collateral requirement
- ETH capital providers who provide the 16 ETH per minipool requirement
- Node operators who take care of the actual running of a validator