Intro

This document aims to summarize discussion from langers' 8/1 comment https://discord.com/channels/405159462932971535/971215160192688138/1003857669515378730 through knoshua's 8/3 comment https://discord.com/channels/405159462932971535/971215160192688138/1004270471983943680

It's intended to summarize only, not to persuade, and to focus on areas of (A) general agreement and (B) necessary next steps (including both analysis and decisions).

I apologize, but I will not be calling out particular contributors because I'm synthesizing as I go. There has been a lot of good chat from a lot of people – please see the original discord for details here

Goals

- Preserve the safety of the protocol
- Preserve RPL's value*
- Increase TVL
- Increase capital efficiency
- Allow smaller capital access to become NOs
- Avoid complexity that may induce decision paralysis in potential NOs
- ❔ Reduce commission

*RPL value is seen a couple different ways

- Market price in ETH
- Price per rETH_value_in_ETH

Belief ➡ LEB structure

A model many found useful to think through how to hit many of the goals was:

If you believe…	**Minimum RPL stake should be…**
We are only rETH demand limited. NO supply will meet any demand.	10% Protocol ETH (eg, 4+2.8)
We are only limited by NO supply. rETH demand will meet any supply.	10% NO ETH (eg, 4+0.4)
We are limited by ETH TVL. Both	5% total ETH (eg, 4+1.6)

NO supply and rETH demand will exist until RP is below that total locked ETH.	

The goal here is to roughly match the dynamics of 16+1.6, which meets all 3 definitions! Note that we aren't constrained to these values. For example, you might believe we're NO supply constrained if we go to 4+2.8, but that stops being a bottleneck before 4+1.6. In that case, you'd likely choose a number between those.

Modeling

Minimum safe investment

There has been previous work done on this at https://github.com/htimsk/LEBminipools

❗TODO❗
This needs to be updated to our latest understanding of attacks.
In particular we need to understand:

- The drag of 2 free strikes if everyone takes them
- What proportion of minipools that have taken their 2 free strikes could profitably swap to stealing all future MEV and giving up their remaining principal
- Sensitivity if MEV distribution changes in the coming year(s)

The above represents an opportunistic combination of the lottery and long con attacks.

Value of rETH as a function of LEB type

Here we assume a state where (A) all RPL is staked and (B) it is staked at the exact minimum effective stake. This may not be an accurate take, but it's mostly reasonable since it maximizes capital efficiency and it allows relative comparisons. We assume a particular RPL supply and RPL/ETH ratio. We disregard rewards for these calculations for simplicity (ie, we just look at the ETH used to start minipools).

The model then says:

- $Value\_of\_rETH\_in\_ETH = number\_of\_minipools * Protocol\_ETH\_per\_minipool$
    - $number\_of\_minipools = RPL\_supply * RPL\_per\_minipool$
        - $RPL\_per\_minipool = ratio/min\_RPL\_stake\_in\_ETH$

Here's a few worked out examples:

Ratio	0.015				
RPL Supply	18,547,114				
	NO ETH	**Protocol ETH**	**Min Stake**	**# of minimum minipools to use all RPL**	**Protocol ETH (=value of all rETH)**
Current	16	16	1.6	173,879	2,782,067
10% Protocol_ETH LEB 8	8	24	2.4	115,919	2,782,067
10% Protocol_ETH LEB 4	4	28	2.8	99,360	2,782,067
5% All_ETH LEB 8	8	24	1.6	173,879	4,173,101
5% All_ETH LEB 4	4	28	1.6	173,879	4,868,617
10% NO_ETH LEB 8	8	24	0.8	347,758	8,346,201
10% NO_ETH LEB 4	4	28	0.4	695,517	19,474,470

A key takeaway here is that for a fixed RPL/ETH ratio, a smaller minimum RPL stake implies a much larger TVL for rETH. An alternative viewpoint is that for a fixed TVL of rETH, a smaller minimum RPL stake per protocol ETH implies a smaller RPL/ETH ratio. As an example, for the same TVL the 4+2.8 setup would have a 7x higher RPL/ETH ratio than 4+0.4.

NO supply growth

This model is an order-of-magnitude attempt to get at the incoming ETH from 3 sources (organic, solo staker migration, and Staking-as-a-Service) in the next ~9 months (around withdrawals).

Organic Growth		**SaaS**		**Solo Staker Migration**	
Assumptions: we can slightly accelerated our current pace of growth with the merge narrative and higher APR. Targeting 12,500 minipools by withdrawals, with no exogenous factors included (LEBs, SaaS, etc.)		*Assumptions: SaaS can capture 100,000 ETH in a combination of net-new arrangements: whale marriages, NOA, Ethermine, increased market share by attracting ETH and RPL holders separately.*		*Assumptions: 20% of solo stakers will convert to RP in order to participate in smoothing and higher APR.*	
Current		Net-new ETH	100,000	Quantity of solo staker validators	30,000
Minipools	6,617			Num of solo staker ETH	960,000
NO ETH	105,872				
				20% conversion to RP	192,000
Target By Withdrawals					
Minipools (target EOY)	12,500				
NO ETH	200,000				
		rETH Output with LEBs			
		Total projected ETH by withdrawals	492,000		
		ETH collateral per minipool	4		
		Number of minipools	123,000		
		Minted rETH per minipool	28		
		Total number of rETH minted	3,444,000		
		Current rETH minted	100,387		
		rETH supply multiple	34.3		

There was some follow-up discussion around number details, but nothing drastically off.

There were comments about how much rETH demand we could realistically expect in this time-frame. We've mostly done about 10kETH/month, with our best month being 30kETH (note,

there were liquidity incentives at this time). Multiplying the largest by 9 months, we get 270kETH (though there is a “get the flywheel going” effect that may drive this higher).

Note: one thing that is not considered here is the RPL investment. If that is coming from the same “Total incoming ETH” pool, that is a significant impact.

Some worked examples, keeping incoming ETH as shown

- 4 ETH LEBs (RPL needed assumed to be met from other funds): 3,444,000 ETH of rETH
- 8 ETH LEBs (RPL needed assumed to be met from other funds): 1,476,000
- 8 + 2.4 LEBs: 1,135,384
- 4 + 2.8 LEBs: 2,025,882
- 8 + 1.6 LEBs: 1,230,000
- 4 + 1.6 LEBs: 2,460,000
- 8 + .8 LEBs: 1,341,818
- 4 + .4 LEBs: 3,130,909

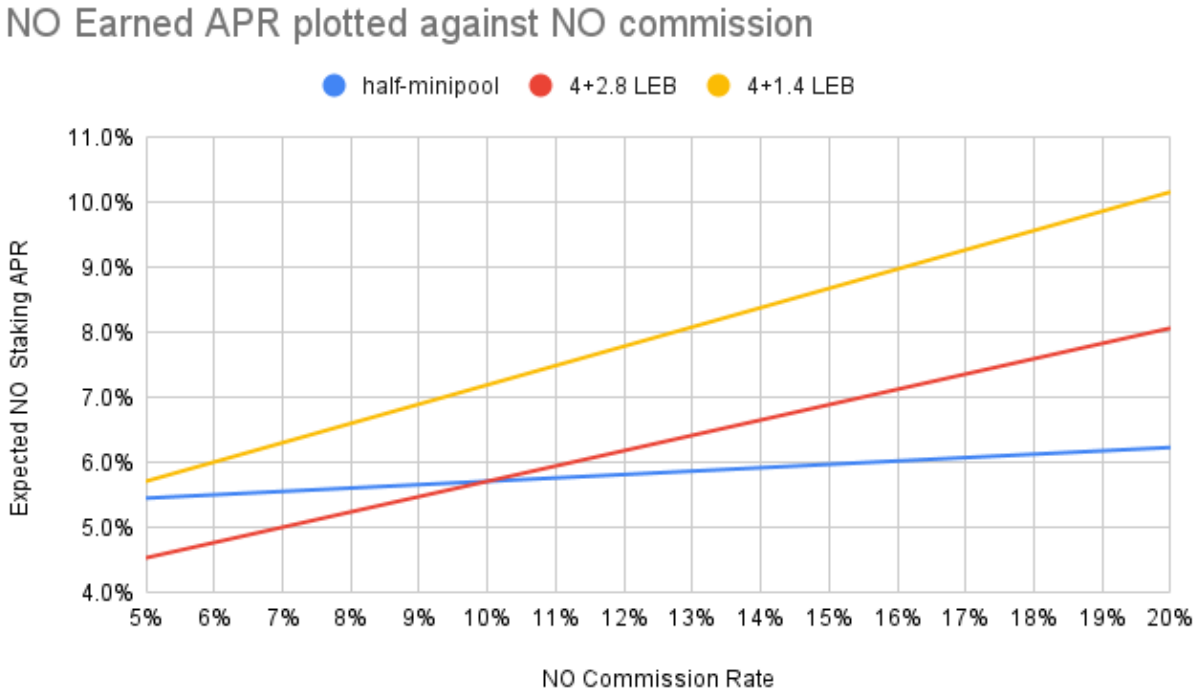
Two alternative takeaways were discussed:

- NO supply vastly outstrips rETH demand at 4+x, so we can ignore NOs as a bottleneck
- NO supply is quite sufficient at 8+x, so we can maintain more initial investment as safety buffer
    - Once we have forced exits, this safety buffer may no longer be needed as we will not be susceptible to “long con” style attacks

Commission to RPL stake relationship

$$ETH\_APR = solo\_stake\_APR * \frac{NO\_ETH + Protocol\_ETH * commission}{NO\_ETH + Protocol\_ETH * min\_rpl\_stake\_as\_proportion\_of\_Protocol\_ETH}$$

Here’s a plot showing some particular setups and an assumed solo_stake_APR of 5.7%



A few things were discussed:

- We should stay above solo staking APR to attract NOs successfully
    - From the equation, this implies $commission > min\_rpl\_stake\_as\_proportion\_of\_Protocol\_ETH$
- There is a strong effect where lower required RPL translates to more ETH APR. This makes intuitive sense because it means you're accessing an amount of commission more cheaply.
- ***IF*** we want to change commission, this is a golden opportunity to do so, because we can potentially provide better rewards despite lower commission in this switch.

Next steps

- Security analysis mentioned above
- Choosing an LEB model based on modeling and gut feel about future market
- Figure out RPL effective definition that can include LEBs