

# **waiting for godot**

## **or trying to find consensus on issuance**

sacha saint-leger  
researcher, lido

The slide features a solid light blue background. On the left and right edges, there are decorative borders composed of stylized, colorful floral and leaf patterns in shades of green, yellow, and orange. Centered on the slide is the text "what this talk is not about" in a white, lowercase, sans-serif font.

what this talk is not about

making the case for no issuance change



IntrinsicVector

2  Feb 24

I believe that modifying the issuance curve could potentially lead to issues with Ethereum's trustworthiness and neutrality. Furthermore, if modifications are made, there is no guarantee that it will be a one-time adjustment.

Large corporate staking has a higher chance of proposing blocks, and they are more likely to gain MEV benefits compared to solo stakers. Therefore, I think that solo stakers are the ones who would be disadvantaged and in the event of a reduction in profits, it is anticipated that the solo stakers would be the ones to go extinct.

While there is an urgent need for updates, in order to approach this carefully, I believe that a simple and certain way to limit this would be to temporarily adjust the maximum staking amount dynamically according to the total supply quantity, and to establish a queue for entry stability.

6  



ryanberckmans

Feb 22

Changing our monetary policy represents a significant hit to credible neutrality.

Why not wait and see

- How LST competition continues evolving
- Whether or not restaking delivers yield at scale, and
- How 7251's max effective balance change plays out?

I'm not a researcher and have only a welcome appreciation for the depth of research here, but I can't at this time see the community supporting this change.

3  



**Jon Charbonneau**  

@jon\_charb



research lately on ETH PoS issuance has been very good but I remain very opposed to any changes rn

initial curve was somewhat "eh feels about right" but the new one is fundamentally no different

these tweaks try to solve an unsolvable problem of fundamental tradeoffs in PoS

10:09 PM · Mar 30, 2024 · **57.3K** Views



16



23



164



29





what this talk is about

an attempt to find a synthesis/consensus that all sides can put up with



taking as axiomatic that most EF researchers have already made their minds up that an issuance cut is the right thing to do

even if they might disagree on the details



what do we agree on already?

issuance should concern itself with macro level risks to ethereum



## Why should Ethereum reduce its issuance?

### Overview

At the most basic level, stake participation is growing beyond requirements for [economic security](#), and paying people to do something that is not necessary always comes with downsides. To be more specific, there are two fundamental reasons for reducing issuance:

1. To reduce costs for users, including costs for hardware, risks and opportunity costs, taxes, etc. By maintaining the current reward curve, Ethereum compels users to incur higher costs than necessary for securing the network. Reducing issuance will improve welfare by eliminating implied costs that may very well amount to more than a billion dollars per year.
2. To improve Ethereum at the macro level. If everyone stakes, one entity or a cartel might come to exercise control over a large proportion of all ETH. This can reduce security since it becomes harder for the social layer to hold such entities accountable. The potential proliferation of liquid staking tokens (LSTs) may also impede ETH as trustless money, fostering monopolization and making Ethereum a less desirable blockchain to build on.

The answer will now take a closer look at these two aspects.



## 6.4 The proportion that matters to ETH holders

The insights presented in Sections 2.1, 2.2, and 4 have implications for Ethereum's users, irrespective of if they hold significant amounts of ETH. **Having a viable social layer—uncorrupted by any SSP—ultimately matters to credible neutrality.** Having solo stakers matters, and having many viable options for delegated staking matters. These things also matter specifically to the ETH token holder. It is ultimately not the “proportional yield”, but rather the proportion of the world economy powered by Ethereum that will affect the ETH token holder the most, including the staker. If an issuance policy degrades Ethereum, there is little point in having maximized  $y_p$ , certainly not to users that do not hold ETH, and not even to ETH token holders, because the native token of a blockchain that has been degraded is not as valuable. The *real* “real yield” incorporates the change in value of the underlying ETH—including any staking yield—relative to a relevant consumer price index. However, it just so happens that it is indeed very useful to have sound native money in an economic system. And it so happens that the best sound money will not encumber its users to research the reliability of various SSPs, track staking income and see it taxed, or risk being wiped out in a slashing event or other failure.



where do we disagree?

what the purpose of issuance should be (maybe)

our confidence in the shape of the long-run supply curve (probably)



the relative chances of macro level risks under different issuance rates (definitely)



macro level risks: thesis

not touching issuance at this stage increases the likelihood that an LST ends up dominating ETH as the most liquid and widely used currency within the ecosystem

this could make it much harder for Ethereum to recover if that LST were to turn malicious at some point in the future, since it's much harder to fork something out that most users depend on



Counterarguments [here](#).



OisínKyne:



...there is a long way to go in my eyes, before the Ethereum operator set becomes sufficiently decentralised for what it needs to be to be black swan secure, and I think bounding issuance, and making it even harder for marginal stakers to stay afloat, making distributed validators particularly economically non-viable at retail scale, will push Ethereum down the road I outlined in “[the staking problem](#)”, which was more eloquently framed by Ameen, as USDC fork choice rule.

Great link! Interesting to read thinking from the early days. A relevant section to me would be this.

They're violating the rules they are supposed to abide by, but with 92% of all ether, who's going to stop them? “**This is important**”, they say. Within minutes, a new longer chain has outpaced the fork that contains the hack, history has been rewritten, the world has collectively decided to forget those transactions.

While it is not perfectly clear if the author meant to refer to all ETH or all staked ETH, **a key reason for MVI is precisely because of the fear that all ETH would be staked when some black swan event takes place. Consider the impact of a black swan event causing a chain split in this scenario. It would make it very hard for the community to come to social consensus.** I'll quote my write-up from the MVI thread that outlined this idea:



40. ...LST holders and any application or user who needs the LST to preserve its value will develop a shared destiny with both the LST and ultimately the LST issuing organization (the SSP).
41. In the case of a mistake or misdeed, which may also take place at any mechanisms designed to regulate the organization (such as smart contracts, on-chain governance, or government regulations), Ethereum's social layer may not have the capacity for appropriate (non) measures.
42. It would require Ethereum to destroy a large part of itself. The affected users may prefer to reinterpret the mistake or misdeed as something entirely different. Once you become the money of Ethereum, you to some extent *become* the social layer.
43. The money function is in this way a [Ryanian "stratum for cartelization"](#) that acts one layer above the various strata (e.g., MEV extraction, block-timing manipulation) that Ryan explores in his post on the risks of LSTs.
44. We are no longer only concerning ourselves with the proportion of the staked ETH under an LST, but the proportion of the total ETH under an LST. The corrupted institution(s) correspondingly also sits one layer above the consensus mechanism, namely the social layer.
45. It became apparent with The DAO that if the proportion of the total circulating supply affected by an outcome grows sufficiently large, then the "social layer" may waver on its commitment to the underlying intended consensus process.
46. If the community can no longer effectively intervene in the event of for example a 51 % liveness attack, then risk mitigation in the form of the [warning system discussed by Buterin](#) may not be effective.
47. The consensus mechanism has in this case through derivatives grown so large and interconnected that it has overloaded its ultimate arbitrator, the social consensus mechanism. It is a special and sort of inverted case of [issues Buterin warned about](#).



macro level risks: antithesis

cutting issuance increases the likelihood that a centralized exchange dominates staking



this could have dire consequences for ethereum's ability to remain censorship resistant

a coinbase tailwind is increasingly likely given trump's election win

there is now an increased probability of staking ETFs

so why are we considering adding fuel to the fire?

perhaps most importantly, even with <50% of ETH staked, a malicious coinbase could prove impossible to socially slash

to see this, consider the following hypothetical scenario...

a significant issuance cut is implemented, even if the risks of the staker set centralizing haven't been fully ruled out.

with margins compressed, and ETH staking ETF's given the greenlight, stake centralizes quickly. within a few years, over 50% of validators are run by Coinbase

fast forward to 2030, the Dems are back in power and the US govt puts a tremendous amount of pressure on Coinbase to refuse to process blocks that contain privacy-preserving transactions in them or transactions from a continuously updated government blacklist



by this time, Brian is no longer CEO, he's stepped down to focus on longevity research.

his replacement is not as OG or aligned, and caves in in order to appease both the government and CB's shareholders

most of the ethereum crowd is now on farcaster. while farcaster has been a huge value add for both the UX and resilience of crypto so far,

it's strong ties to coinbase make it especially difficult for anti-CB narratives to spread across the social layer

major base and farcaster influencers argue that forking out coinbase at this stage would be extremely unfair to the innocent users / teachers / pension funds etc who are just looking for a safe place to park their ETH,

and net negative to both Ethereum and the price of ETH

a core group of ethereum OG's and researchers threaten to leave the project if the censorship doesn't stop.

the ethereum community splits into two camps and a contentious fork occurs.

circle sides with coinbase

at this point, the two sides are in their two separate universes with their own chains, with no practical way of coming back together.

ethereum, a global permissionless platform created in part to be a refuge from nations and geopolitics, instead ends up cleaved in half by a large corp that is ultimately accountable to its shareholders and government

coming back down to earth, the point of the antithesis here is to show that it's too simplistic to view the macro level risk solely through the lens of the amount of ETH tied up in staking



## 5. The social layer exerts its influence beyond the staking layer



xadcv:



This is the key consideration that we believe that the Ethereum community needs to spend more time on. Namely, do we want to fully lean into our final defense as the “punishment in the future” (social slashing) – in which case we agree to potentially have 34% and 51% staked ETH concentration; OR do we want to be more proactive, and make deliberate “preventive” measures in order for such stake concentration to not occur – in which case the diversity of the validator set is of utmost importance.

I do not think that the importance of diversity in the validator set is a point of contention. We both want a diverse validator set. **The important point is that if an attack requiring social intervention indeed does happen, then if all ETH is tied up in staking, this would be a very fractious process.** It is in this light we must understand my response to the post:

which is one of the main reasons given for cutting issuance



as we see, there are complex social dynamics at play here that are difficult to untangle



why we need to be taking the coinbase risk  
more seriously

today, coinbase is the largest ethereum node operator with nearly 15% market share

staking ETFs are likely to happen under trump. and there's a good chance coinbase will corner the market here

the US cannot afford to risk capital flight – so we should expect only US based custodians to be whitelisted

8 out of 11 bitcoin ETFs use coinbase as their custodian. this is a pattern that is likely to repeat with ETH

the switching cost of moving capital on-chain is extremely low compared to the switching costs of moving capital from an ETF/CEX

if staking yield drops below a certain point, onchain capital will leave for higher yields in DeFi



to put it in more technical language, centralized custodians are likely to have a much lower supply curve than decentralized pools

all this means that there is the real possibility that staking ETFs combined with issuance cuts (accelerant) leads to one custodian controlling 51% of ETH staked a few years down the line

If that happens, you can probably say goodbye to ETH's monetary premium

since this custodian has a large, if subtle, influence over the social layer

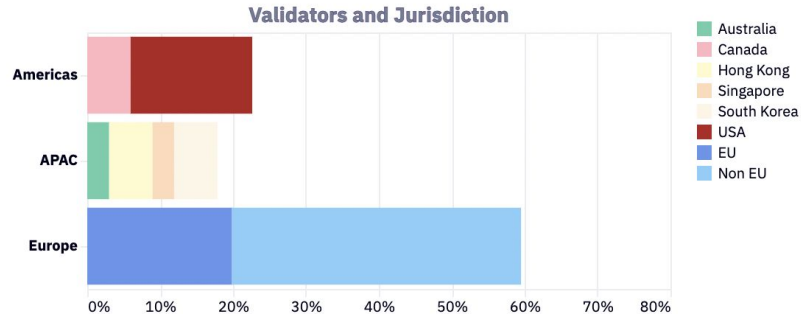
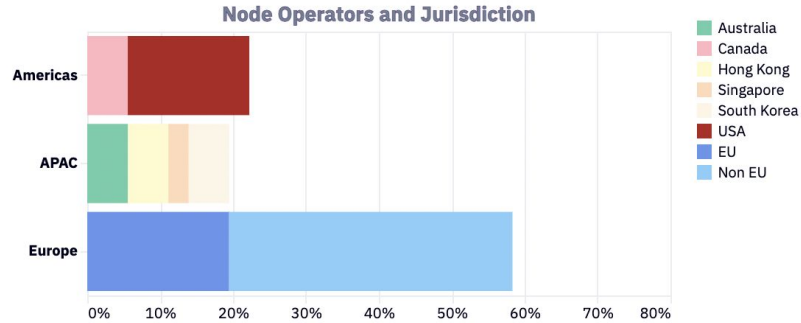
it will be very difficult, if not impossible, to fork them out should something go wrong



how does a strong LST add value to ethereum?

# Jurisdictional Dispersion

Jursidictional dispersion is an important quality of a robust validator set. The below data indicates where Node Operators who participate in the Lido protocol are domiciled, and what overall percentage of validators are operated by Node Operators domiciled in those jurisdictions.

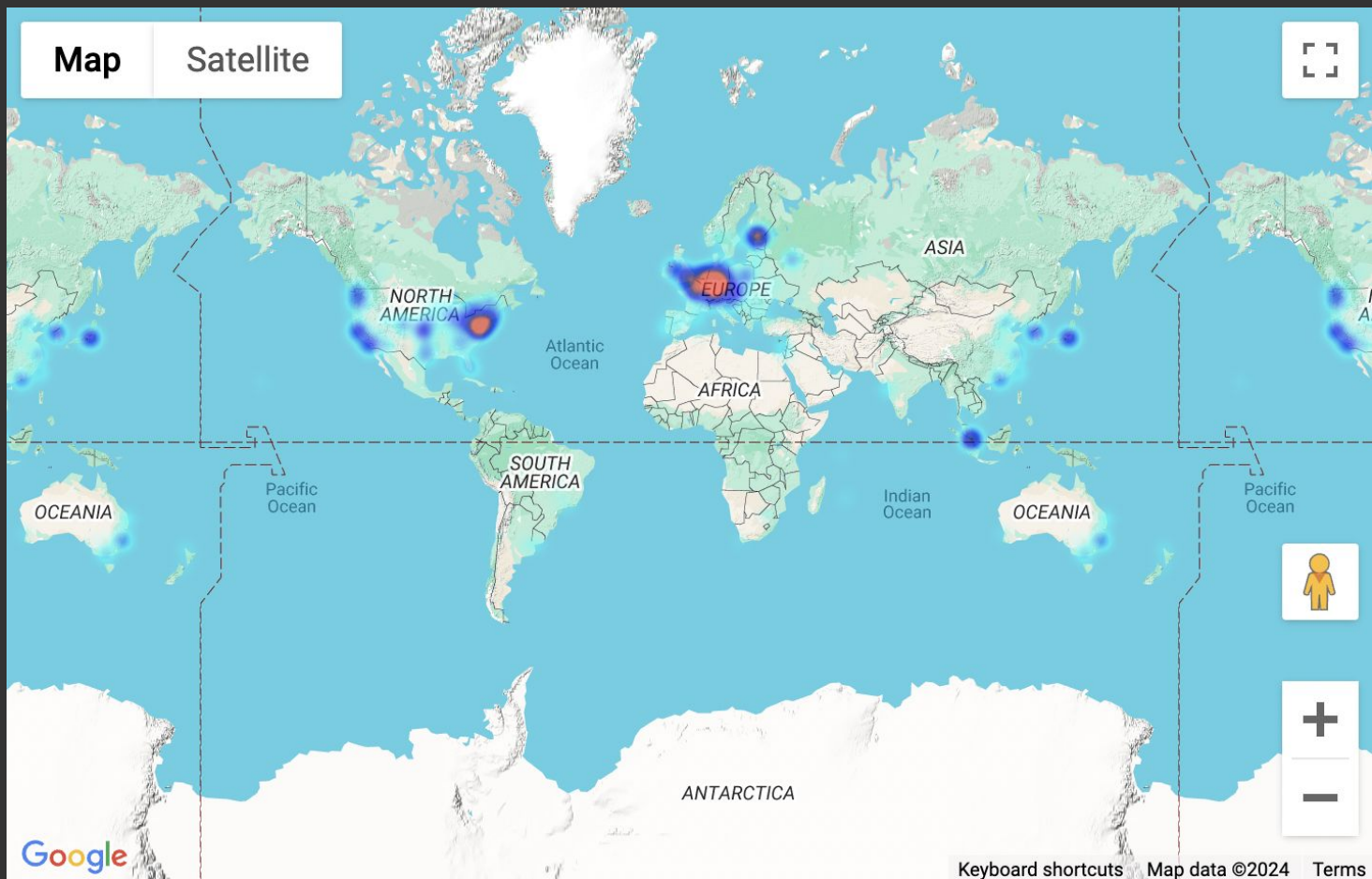


Almost 20% of Node operators running Lido are domiciled in APAC countries (Hong Kong, Singapore, Australia, South Korea)



And while Europe comprises nearly 60% of the total, **two thirds of these are non EU – including countries like BVI, Cayman Islands (British territories)**

**60% non EU and non US nodes** is a pretty resilient distribution – especially compared to an Ethereum without Lido



while you should take this data with a grain of salt, according to ethernodes more than 66% of Ethereum nodes are based in either the US or the EU – which is significantly worse than Lido

if lido can get to 5-10% of representation from both latam and africa that would be perfect





**can we find a synthesis?**

theorem:



### Initial Analysis of Stake Distribution



**Theorem 1.** The level of (issuance) yield does not affect the staking mediums used by individual stakers.

In essence, when applied to your suggestion, you can think of the analysis as stating in mathematical terms “if solo stakers can increase risk-adjusted rewards by becoming node operators, why aren’t they doing it right now?”

There are then potential **edge cases**:



### Initial Analysis of Stake Distribution



“I love to run a node, but not into a loss”

But these should not dominate. **My point would be that focusing on if solo stakers might stop staking to a higher degree than delegating stakers at some specific yield is more important than if they change modality.**



i agree with anders here. solo stakers are indispensable, and we need more of them

but the overarching emphasis on solo stakers by issuance experts is missing half the story

If we care about using issuance to improve the geopolitical decentralization of the underlying nodes, **we need to pay just as much attention to whether or not onchain delegating stakers might stop staking to a higher degree than those holding their ETH on exchanges at some specific yield.**

in other words, the answer we're looking for really boils down to the shape of the respective supply curves for the different types of operators in question



barnabe

Feb 29

Thank you for the meta framework, this is a useful starting point. There will be much more to say about individual items, so I am not intending to reply fully to each of them right now. Here are questions currently on my mind, with some notes on potential approaches:

- **Assumption of “long-term staked participants” given *any* PoS reward curve design:**

Model cost structure of various types of participants (solo stakers/operators, node operators, LST holders, ETF depositors) as well as type-specific reward curves (e.g., solo staker PnL, solo operator part of fractional/DVT pool, node operator in LSP, custodial services). Combining cost structure and reward curves, we obtain type-specific supply curves. Move on to understanding the distribution effects (relative share of each type) across classes of issuance curves, as well as aggregate size of the staking set as determined by type-specific supply curves and issuance curves under consideration.

*Leading question:* Is there a “macro effect” to the size of the staking set? (i.e., analyse further folk arguments that more issuance loosens everyone’s constraints and increases the relative share of certain types)

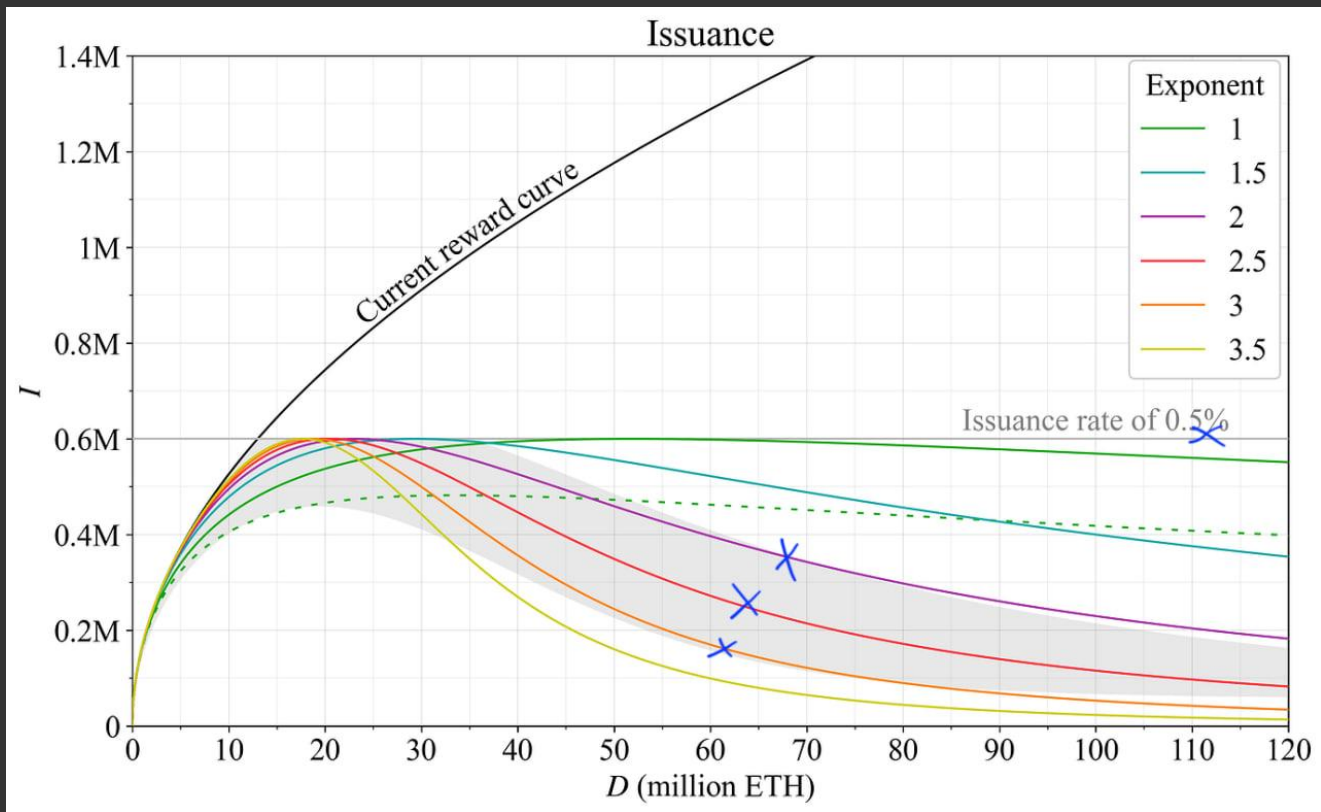
without this sort of analysis, we can't really be sure whether or not enforcing an equilibrium according to the practical endgame will have a significant negative impact on the composition of the staking set

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**a possible path forward**

barring enough confidence on the shape of the supply curves for different types of operators (TBD) one possible path forward, as I see it today, is to build off anders' latest (practical endgame) proposal





I think that to find a synthesis, we can work with something that is **mostly aligned** with anders' axioms

modulo the additional constraint that **we need to try to depart minimally from the current reward curve**

This additional constraint comes from three things

1. improving the geopolitical distribution of nodes should be a purpose of issuance

2. the macro risk of a dominant CB is as least as important as the macro risk of a dominant LST

3. we don't have a good read on what the long term supply curve looks like  
(even if we agree the supply curve still has some room to shift downwards from here)

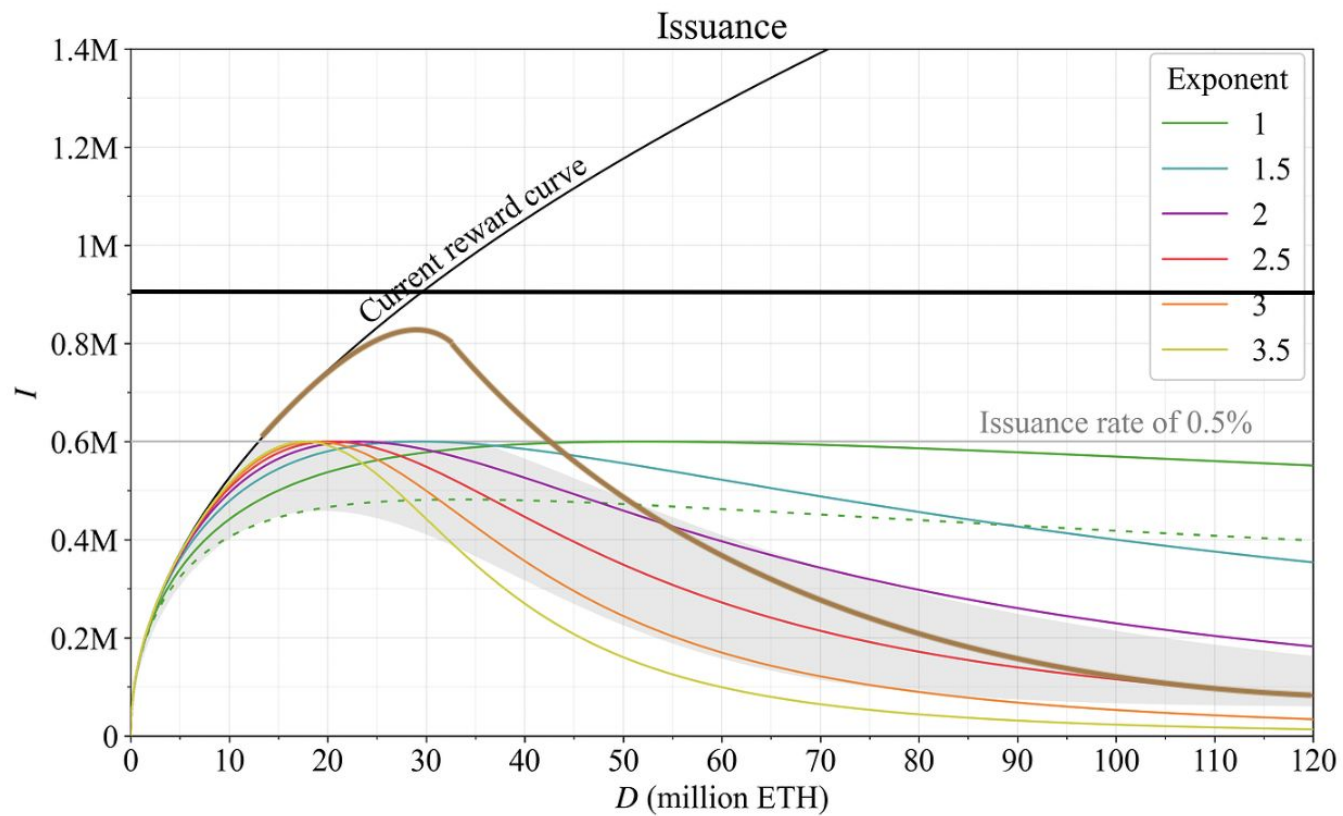
concretely, I think this means finding a mathematically elegant curve that:



1. departs minimally from the current reward curve (up until this point)

- 
2. has a good chance of keeping total ETH staked close to 50%

3. does not significantly increase the chances of cartelization  
(i.e doesn't taper too steeply)





**another possible path (simple, pragmatic)**

one other, possibly simpler, way to thread the needle here is to add a fail safe to the current curve

in other words, to choose a reward curve that sticks to the current reward curve for longer  
(i.e until we get close to 40-45% of ETH staked)

before dropping down (either aggressively or smoothly)

this would act as a pragmatic brake on staked ETH surpassing 50% of the ETH supply



with the current churn rate limit, realistically it will take at least another 4-5 years for the amount of ETH staked to reach 50%

so this wait and see approach would allow us to gather more real-world information on what the equilibrium is likely to be under the current curve, before making drastic changes

# **3 questions to think about**



1. what are the set of reward curves that could build off anders' pragmatic endgame post while departing minimally from the current reward curve?

2. how steeply can the reward curve fall without significantly increasing the risk of cartelization attacks? Is this something we need to be worried about?

3. what are the set of reward curves that could satisfy the simple/pragmatic path? what are the downsides here?



**now you can all throw tomatoes at me. thank you!**

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