

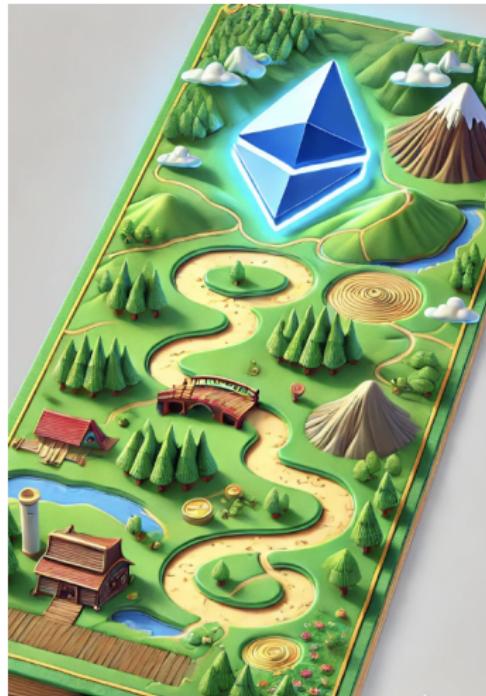
# Neutrality in Ethereum's Block Creation Process



Mike Neuder  
Monday – October 14<sup>th</sup>, 2024  
Harvard Club of New York

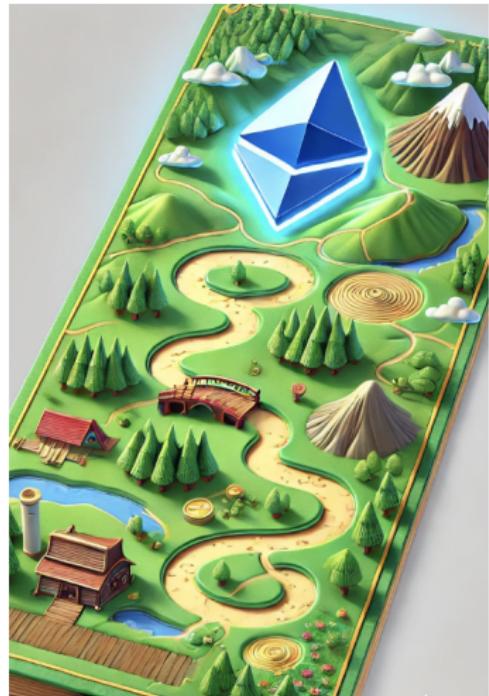
# Contents

- Decentralization is the means; neutrality is the end
  - Ethereum's main export: digital property rights
  - The bigger picture of Ethereum design



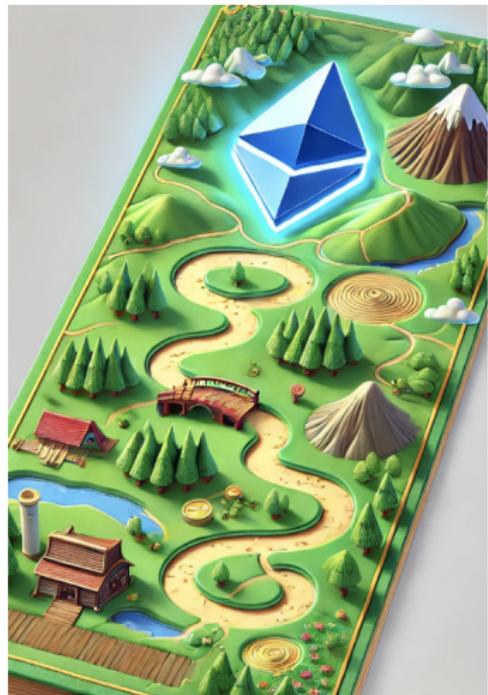
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  - Issuance
  - Transaction fees
  - MEV



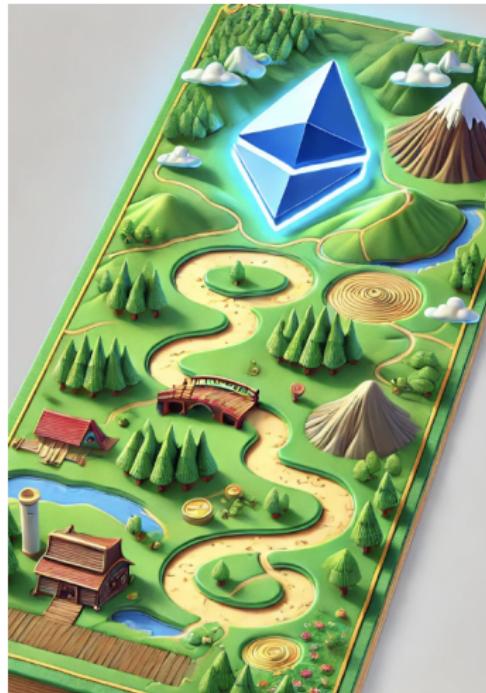
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  - Removing arbitrary transaction exclusion
- ETH, the asset
  - Historical context
  - Yield & Inflation
  - Exogenous forces



## Ethereum's main export: property rights

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- We will explore the micro- and macroeconomic considerations.

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# The bigger picture of Ethereum design



- “*Block production is centralized, block validation is trustless and highly decentralized, and censorship is still prevented.*” – Vitalik<sup>1</sup>

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# Validator rewards taxonomy

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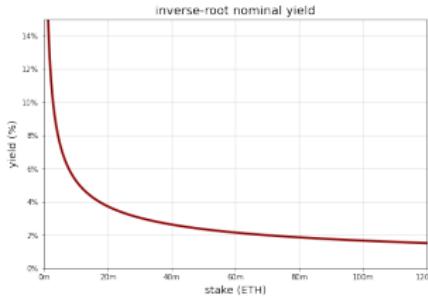
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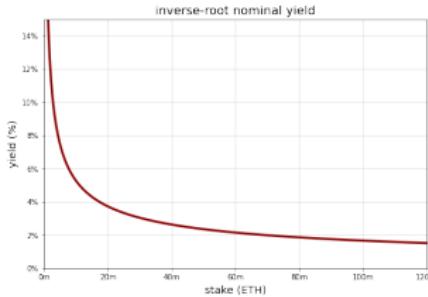


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- These rewards are mostly from voting for the correct block.

<https://notes.ethereum.org/@mikeneuder/subsol>.

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5,126,816 (17.09%   -66%)	30,000,000	5.82 Gwei	0.01478 ETH
29,866,784 (99.56%   +99%)	30,000,000	5.17 Gwei	0.42494 ETH

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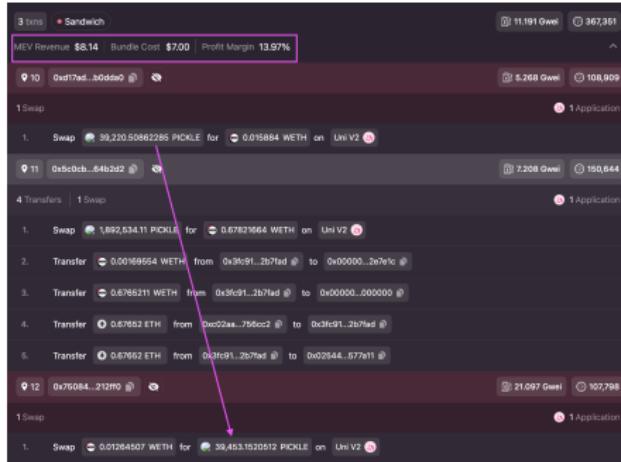
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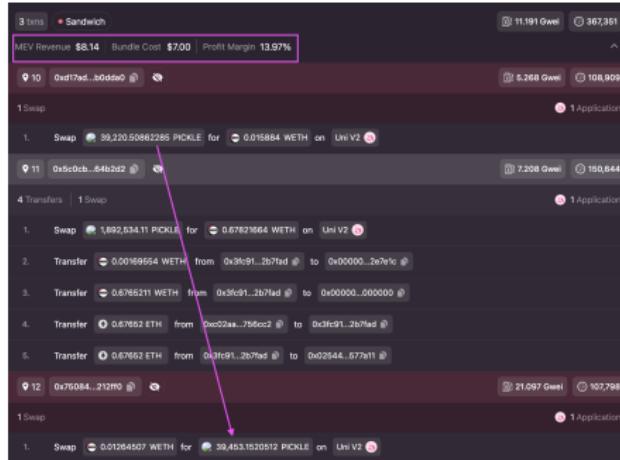


<https://sorellalabs.xyz/dashboard>.

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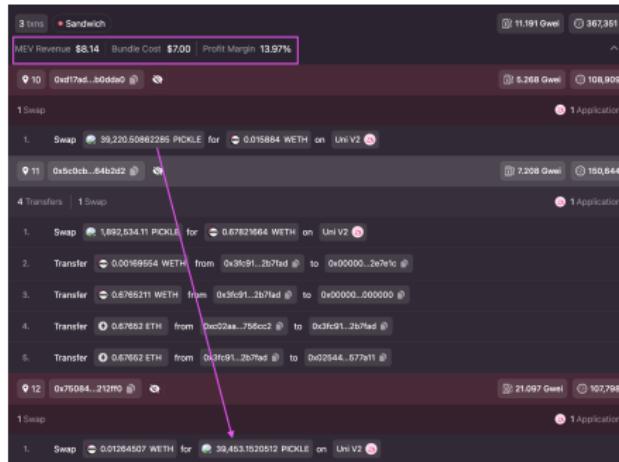
- Other MEV types: atomic and non-atomic arbitrage, liquidations.

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## MEV

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- Other MEV types: atomic and non-atomic arbitrage, liquidations.
- MEV is variable in market conditions and builder sophistication.

<https://sorellalabs.xyz/dashboard>.

# Validator rewards taxonomy

## Summary



<https://ultrasound.money/>.

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- *Issuance* is stable and not very gameable.

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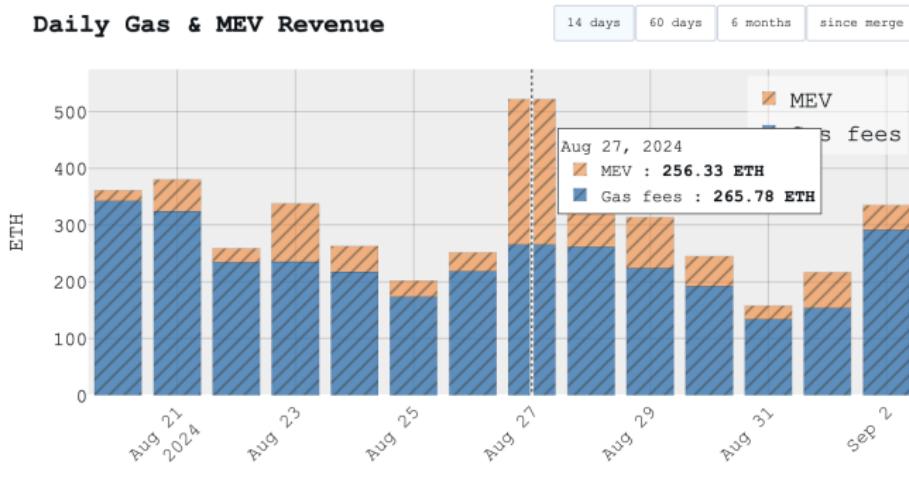
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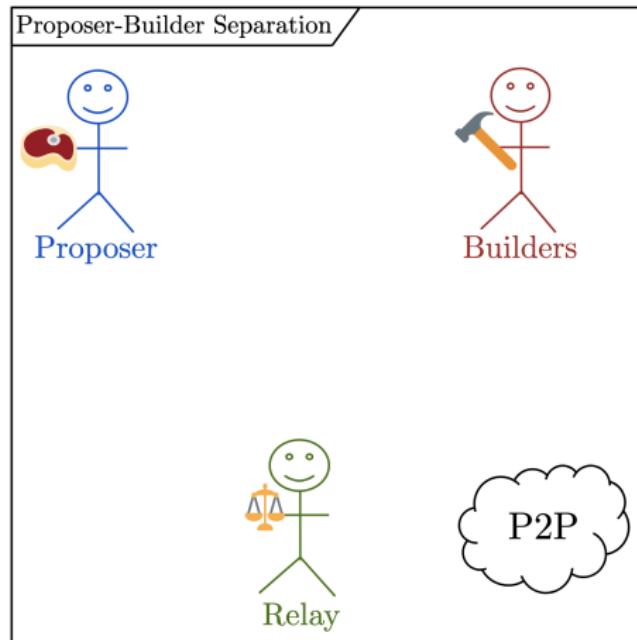
# Validator rewards taxonomy

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- *Potential concern #1:* MEV distorts the network incentives.
- *Potential concern #2:* MEV gives outsized market power to centralized actors. (recall: “Censorship is prevented.”)
- *Potential concern #3:* MEV changes the monetary properties of ETH. (recall: “ETH is valuable.”)

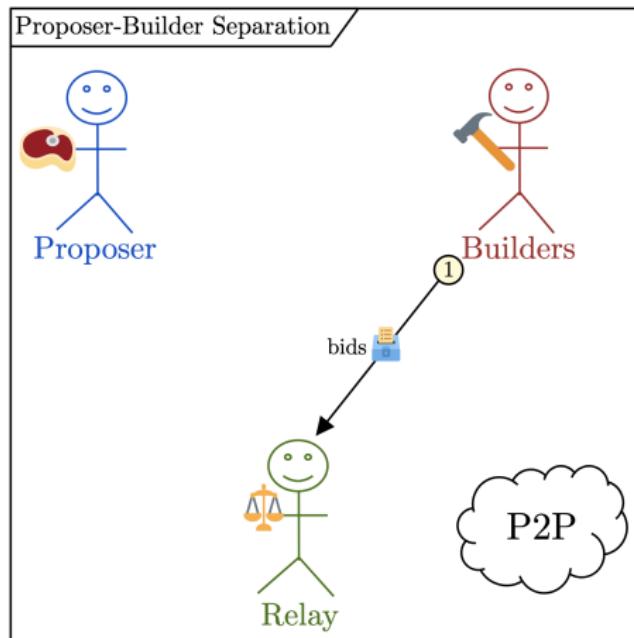
# Ethereum, the protocol

## Current block production pipeline



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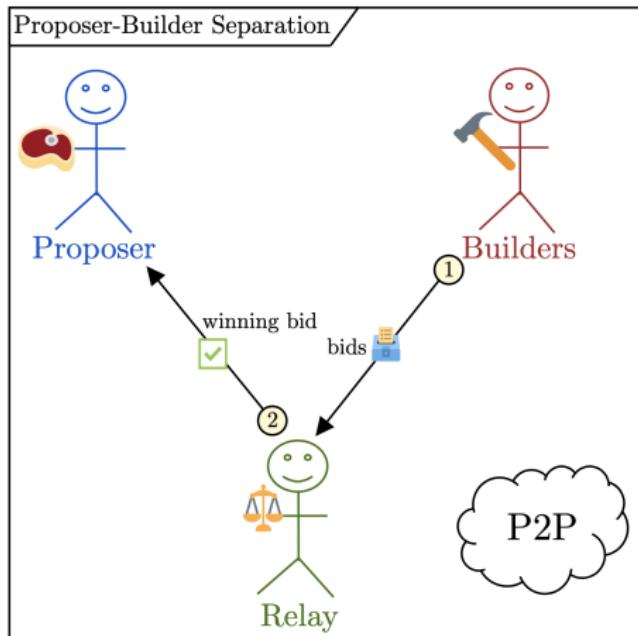
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① **The builder bids** in the auction through the relay.

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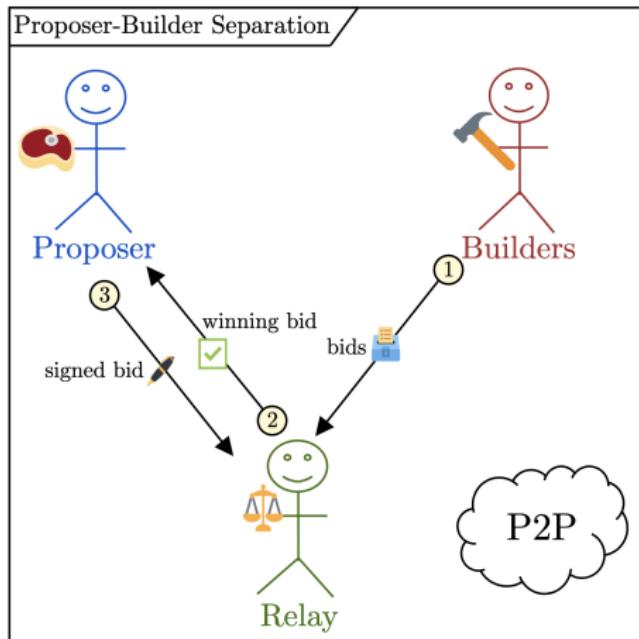
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- ② The relay provides the winning bid to the proposer.

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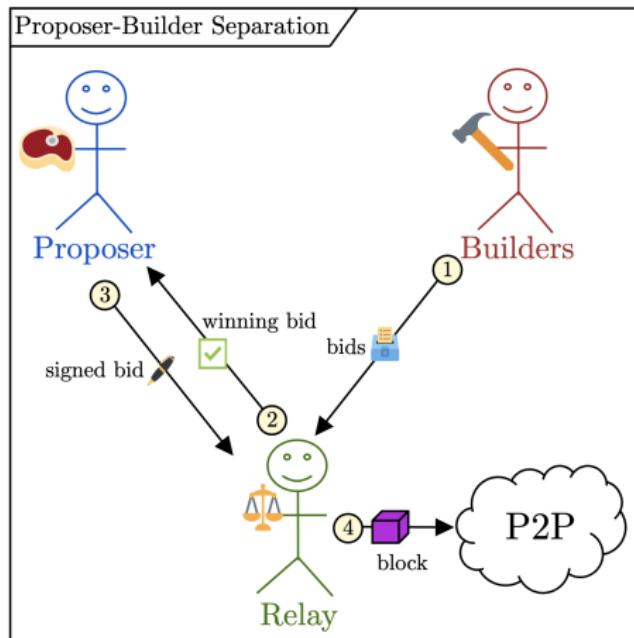
## Current block production pipeline



- ③ **The proposer commits to the winning bid by signing it.**

# Ethereum, the protocol

## Current block production pipeline



④ The relay publishes the block.

# Ethereum, the protocol

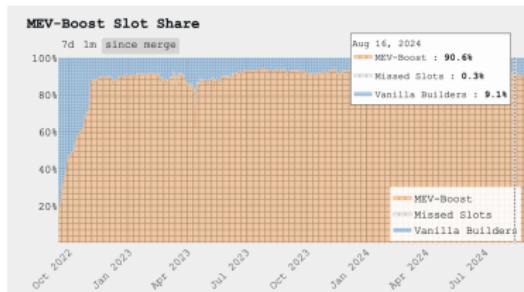
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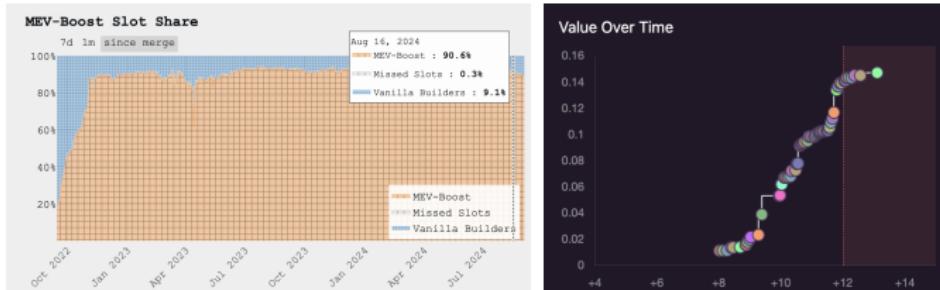


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- The relay brokers the fair exchange to allow *all* validators to participate in the MEV market if they want to...
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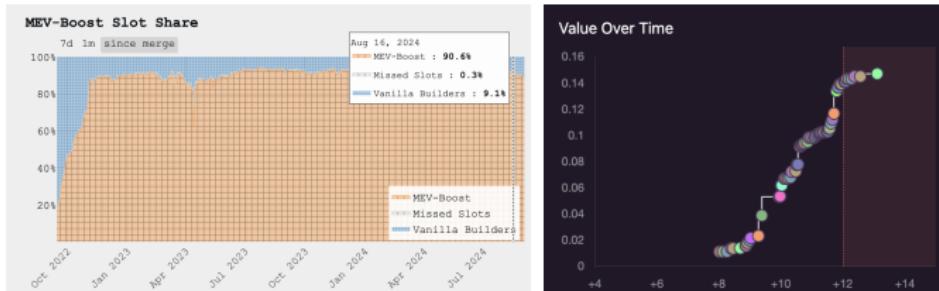
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## Current block production pipeline

- The relay brokers the fair exchange to allow *all* validators to participate in the MEV market if they want to...
- and most want to...
- but there are still games to played...
- and the market structure gives immense power to builders.



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# Ethereum, the protocol

Removing arbitrary transaction exclusion



- Block builders have outsized influence in the protocol because they determine which transactions to include and in what order.

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- *How can we rely on the decentralized validator set?*

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- *How can we rely on the decentralized validator set?*
- *Idea #1:* Can validators provide a “block template” that the builder must follow?<sup>1</sup>

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<sup>1</sup><https://ethresear.ch/t/no-free-lunch-a-new-inclusion-list-design/16389>

# Ethereum, the protocol

## Removing arbitrary transaction exclusion



- Block builders have outsized influence in the protocol because they determine which transactions to include and in what order.
- *How can we rely on the decentralized validator set?*
- *Idea #1:* Can validators provide a “block template” that the builder must follow?<sup>1</sup>
- *Idea #2:* Can multiple validators co-create this template?<sup>2</sup>

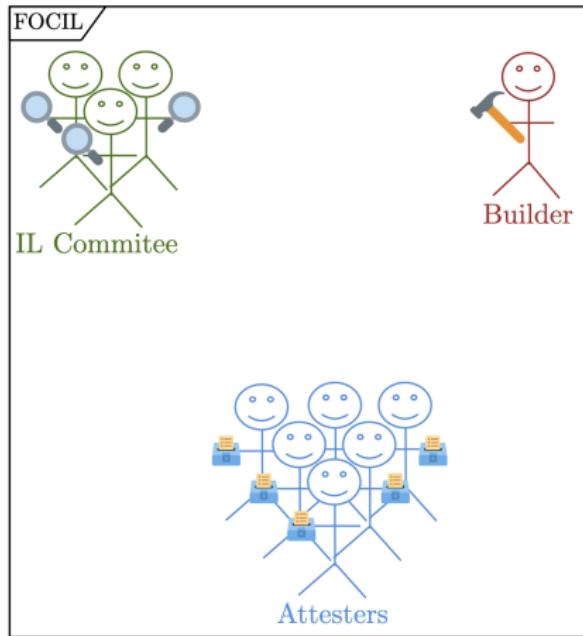
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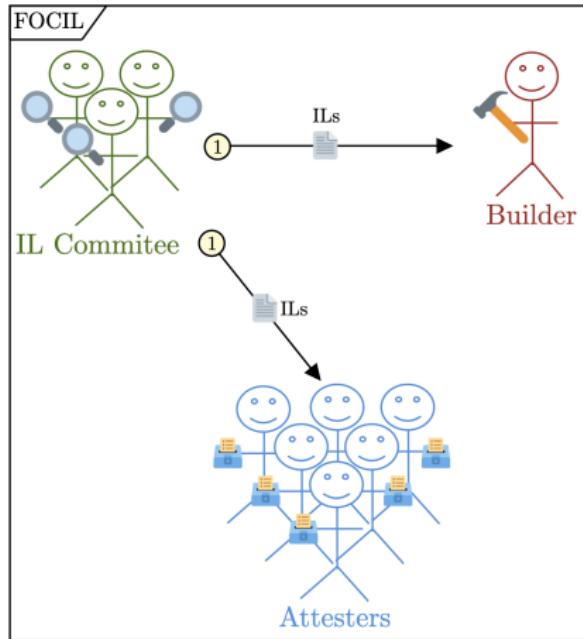
# Ethereum, the protocol

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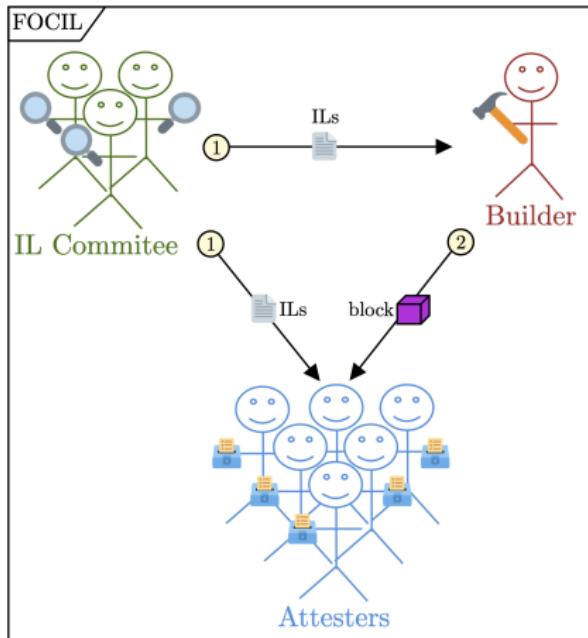
## Removing arbitrary transaction exclusion



- ① **The IL committee publishes** their inclusion lists to the builder and the attesters.

# Ethereum, the protocol

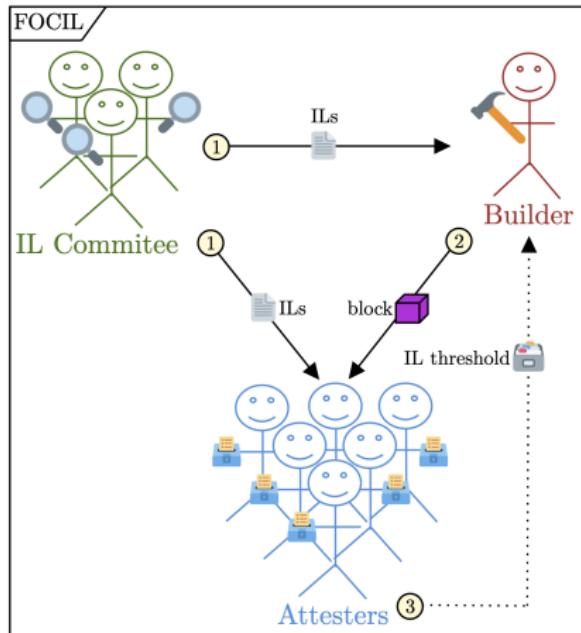
## Removing arbitrary transaction exclusion



- ② **The builder publishes** a block that includes an aggregate view of the ILs they received and conforms to the constraints therein.

# Ethereum, the protocol

Removing arbitrary transaction exclusion



- ③ **The attesters enforce** the block validity conditions, which now check that the builder included a sufficient threshold of observed inclusion lists.

# ETH, the asset

## Historical context



[https://ycharts.com/indicators/ethereum\\_supply/chart](https://ycharts.com/indicators/ethereum_supply/chart)

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## Historical context



- Aug. 5, 2021 – EIP-1559 activates and starts burning the base fee.

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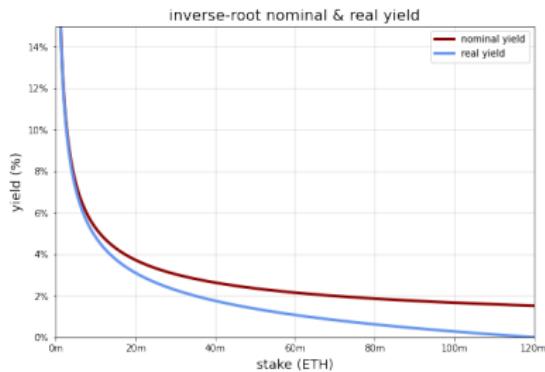


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- March 13, 2024 – EIP-4844 activates and makes data cheaper.

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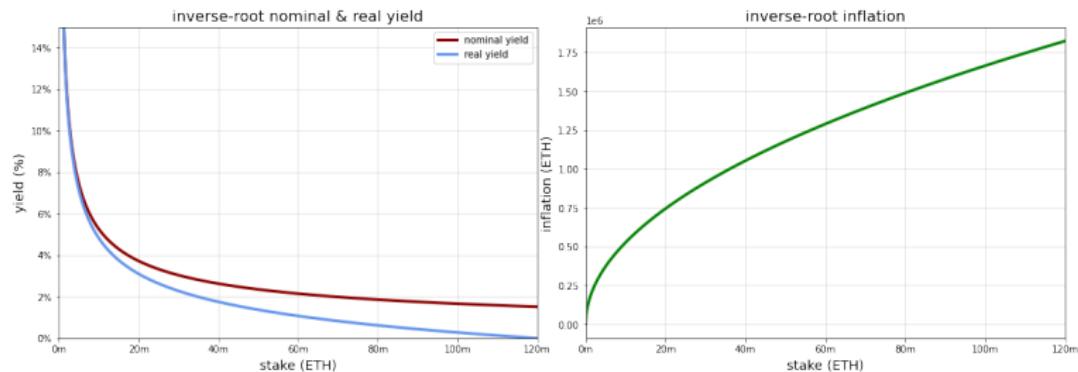
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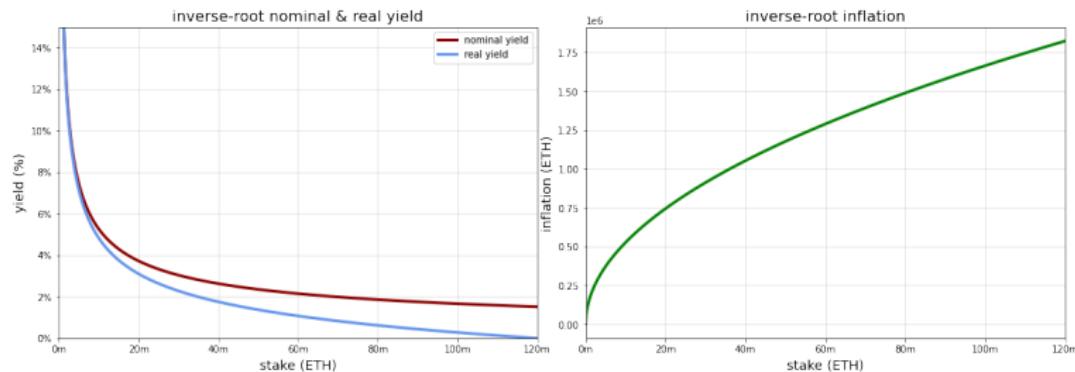
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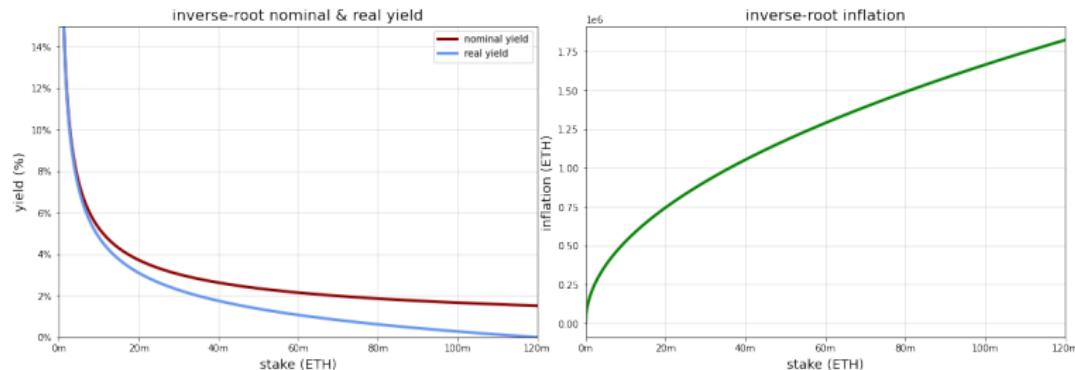
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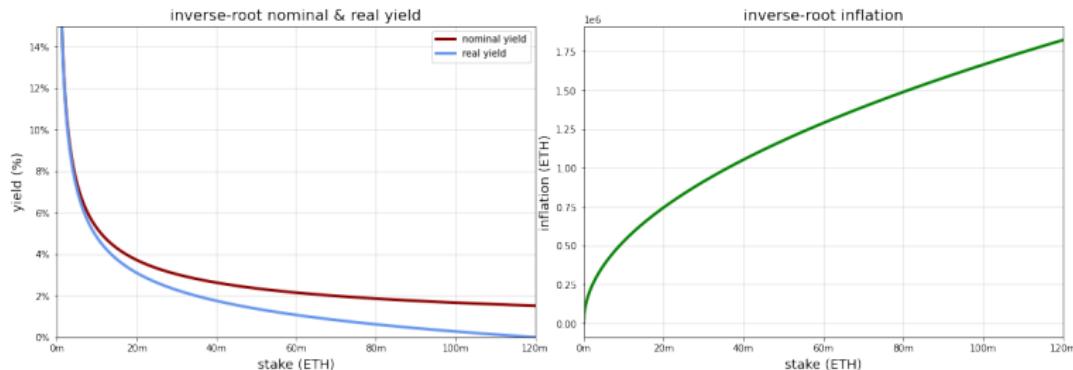
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# ETH, the asset

## Yield & Inflation



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  2. The native token becomes expensive to hold.

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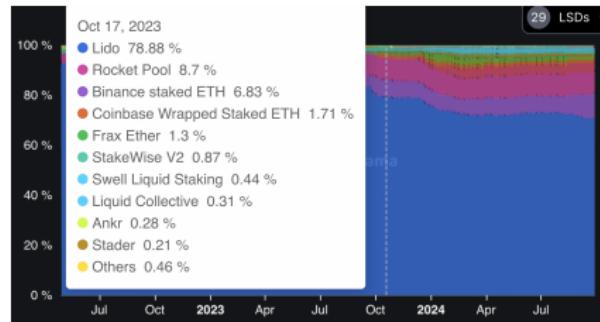
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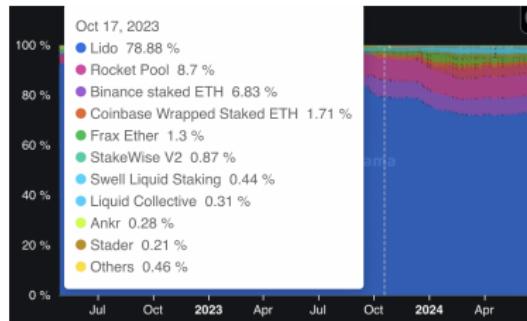


<https://defillama.com/lst>

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Oct 17, 2023

James Seyffart @JSeyff ...

What are we expecting today for the Ethereum ETFs?

We expect them to begin trading tomorrow. That means we should see a bunch of filings on SEC site today that say the ETFs' prospectuses have gone "effective". Likely after or around market close. Here are the race entrants:

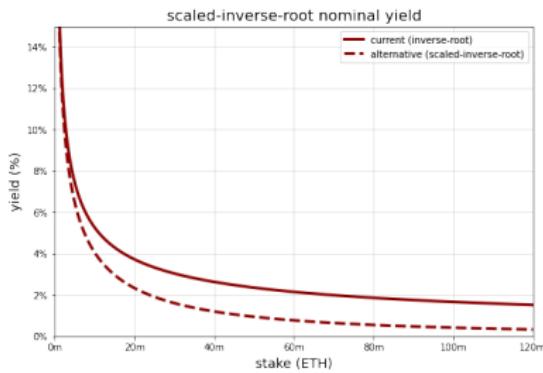
Name	Ticker	Starting Fee	Post Waiver Fee	Waiver Length	Waiver Amount	Exchange	Custodian
Argonaut Ethereum Mint Trust	ETH	0.0%	0.1%	0 Month	\$2.5 Billion	NYSE	Citibank
Franklin Ethereum ETF	EETF	0.0%	0.1%	Used 10/21/28	\$16.0 Billion	CBOE	Citibank
Vanguard Ethereum ETF	ETHV	0.0%	0.20%	1 Year	\$15.5 Billion	CBOE	Genstar
State Street Ethereum Fund	SETH	0.0%	0.21%	6 Months	\$0.5 Billion	NYSE	Citibank
3iShares Core Ethereum ETF	GETH	0.0%	0.21%	3 Months	\$0.5 Billion	CBOE	Citibank
Fidelity Ethereum Fund	FETH	0.0%	0.25%	Used 12/21/24	UNLIMITED	CBOE	Fidelity
iShares Ethereum Trust	ETHA	0.12%	0.25%	12 Months	\$2.5 Billion	Nasdaq	Citibank
Proshares Ethereum Strategy ETF	ETHW	0.2%	0.25%	12 Months	\$0.5 Billion	Nasdaq	Citibank
Grayscale Ethereum Trust (Conversion)	ETHG	0.0%	0.25%	None	None	NYSE	Grayscale

<https://defillama.com/lst>

<https://x.com/JSeyff/status/1815395664051818873>

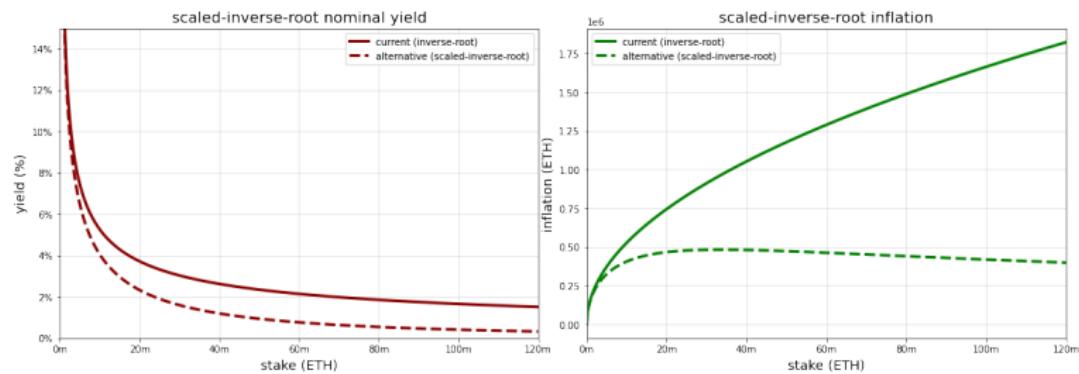
# ETH, the asset

## Proposed issuance changes



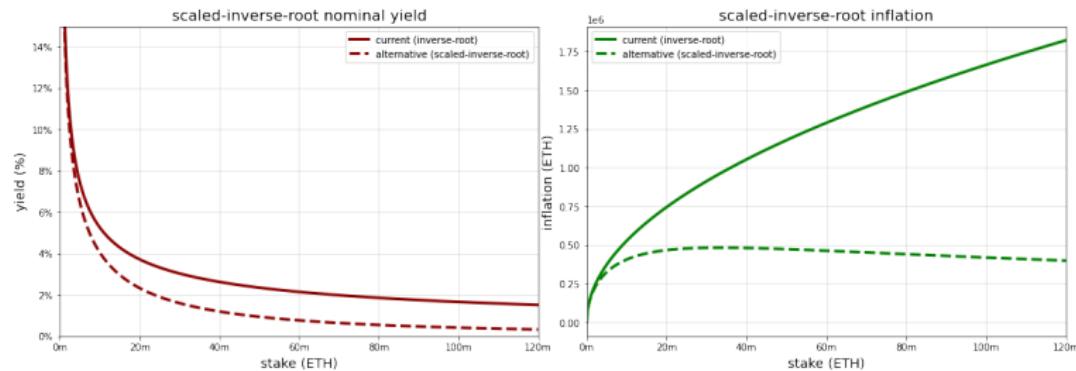
# ETH, the asset

## Proposed issuance changes



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- How (if at all) should we think about modifying a decentralized monetary policy?

thanks :)

