

COINMETRICS INDEXES

MARKET CONSULTATION

CMBI ETHEREUM STAKING INDEX

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Introduction

The CMBI Ethereum Staking Index is designed to represent the performance an investor would expect from purchasing and staking Ethereum.

On May 7, 2025 the Ethereum foundation will release the Pectra upgrade that will allow for compounding. As such, the CMBI Ethereum Staking index calculation will be updated to allow for hour compounding to better represent the performance an investor would expect from purchasing and staking Ethereum.

In accordance with our CMBI Policy, Coin Metrics is consulting the market regarding these changes to the market selection process.

Responding to the consultation:

CMBI stakeholders are invited to respond by 16 May 2025. The responses will be reviewed by the Coin Metrics Oversight Committee and any changes will be communicated by via an announcement, which will be available on the coinmetrics.io public website

Please submit your response to the consultation to "cmbi-support@coinmetrics.io".

All responses will be treated as confidential.

If you have any questions about this consultation, please contact "cmbi-support@coinmetrics.io".

CMBI Ethereum Staking Index Background

The CMBI Ethereum Staking Index is designed to represent the performance an investor would expect from purchasing and staking Ethereum.

Proposed Changes Overview

Staking Rate, “*StakingRate*”, is the periodic rate that quantifies the annualized yield awarded to eligible validators who staked Ether on the Ethereum blockchain. The staking rate is derived from Consensus Layer rewards accrued over a rolling one-day observation window.

Reasons for Change

The CMBI Ethereum Staking index calculation will be updated to allow for compounding that is part of the Ethereum Pectra release to better represent the performance an investor would expect from purchasing and staking Ethereum.

StakingRate will change as a calculation input following the Ethereum Pectra upgrade. Due to the release, the metric will no longer be directly applicable as it would not account for the asset’s ability to auto-compound staking. With auto-compounding, staking rewards are automatically added to the validator’s effective balance, and the rewards are then re-staked, essentially earning interest on the accumulated rewards. Thus as part of this release, Coin Metrics has officially shifted from using *StakingRate* as a direct calculation input for the index, as it would cease to accurately capture an investor’s financial return on purchasing and staking Ethereum.

For more information regarding the Pectra Upgrade and its impact on Ethereum, please visit <https://coinmetrics.io/state-of-the-network/pectra-ethereums-next-major-upgrade/>

Proposed Changes to Methodology

Change Calculation Input

For the calculation algorithm, an hourly converted rate of the Nominal Staking APY (*StakingAPYNominal*) will be used in place of the *StakingRate*. The input change will adjust the calculation to account for compounding.

Calculation Algorithm

CMBIETHS is calculated every hour. At the calculation time t , CMBIETHS is calculated as:

$$CMBIETHS_t = CMBIETHS_{t-1} * \left(\frac{CMBIETH_t}{CMBIETH_{t-1}} + \left((1 + StakingAPYNominal_t)^{\left(\frac{1}{8760}\right)} - 1 \right) \right)$$

Where,

$CMBIETHS_{t-1}$ = Previous CMBIETHS (total return) index value at time $t-1$

$CMBIETH_t / CMBIETH_{t-1}$ = Hourly price return of Ether (as measured by CMBIETH)

$StakingAPYNominal_t$ = Annualized compound return yield for staking Ether

$\left((1 + StakingAPYNominal_t)^{\left(\frac{1}{8760}\right)} - 1 \right)$ = Conversion of the annualized yield to an hourly rate that accounts for compounding.

Calculation References

Staking Rate

Ethereum's staking rate is expressed as a periodic rate that quantifies the annualized yield awarded to eligible validators who staked Ether on the Ethereum blockchain. The staking rate is derived from Consensus Layer rewards accrued over a rolling one-day observation window. On days where clocks adjust for daylight savings time, the observation window may be shorter or longer than other days.

$$StakingRate_i = \frac{IssContNtv_i - PenaltyNtv_i - SlashedNtv_i + FeePrioTotNtv_i}{SplyActStkedNtv_{i-1}}$$

where:

$IssContNtv_i$: = sum of native units issued on the Consensus Layer during hour i of the Observation Window

$PenaltyNtv_i$: = total amount of penalties enforced by the protocol during hour i of the Observation Window

$SlashedNtv_i$: = total amount of penalties enforced by the protocol during hour i of the Observation Window

$FeePrioTotNtv_i$: = total priority fees paid during hour i of the Observation Window

$SplyActStkedNtv_i$: = sum of all balances from actively participating validators during hour i of the Observation Window.

Nominal Staking APR

Ethereum's nominal staking annual percentage rate is expressed as an annualized rate that quantifies the return for awards to eligible validators who staked Ether on the Ethereum blockchain. The nominal staking annual percentage rate is derived from the summation of a rolling one-day observation window of the staking rate that is then annualized.

$$StakingAPRNominal_t = (365 * (\sum_{i=1}^{24} StakingRate_i))$$

where:

$StakingRate_i$ = A hourly rate that quantifies the annualized yield awarded to eligible validators who staked Ether on the Ethereum blockchain

$\sum_{i=1}^{24} StakingRate_i$ = The summation of staking rate over a rolling one-day observation window

Nominal Staking APY

Ethereum's nominal staking annual percentage yield is expressed as an annualized rate that quantifies the compounding of awards to eligible validators who staked Ether on the Ethereum blockchain. The nominal staking annual percentage yield is derived from the periodizing and compounding of the nominal staking annual percentage rate.

$$StakingAPYNominal_t = ((1 + \frac{StakingAPRNominal_t}{Number\ of\ Intervals})^{(Number\ of\ Intervals)} - 1)$$

where:

$StakingAPRNominal_t$: = Annualized return for staking Ether

$Number\ of\ Intervals$ = 82,000 intervals, measured by the number of Ethereum epochs in a year.

Conclusion

After review, Coin Metrics will implement the calculation input change of replacing the *StakingRate* with an hourly converted rate of the Nominal Staking APY (*StakingAPYNominal*). This is a suitable replacement that will properly account for the compounding ability of staking with the Ethereum Pectra release. Beginning with the June 2025 Rebalancing, the converted hourly rate of *StakingAPYNominal* will be used in the calculation of the CMBI Ethereum Staking Index.