

## Introduction to ETH Staking

### Ethereum in a Nutshell

Ethereum is a decentralized, open-source blockchain platform that enables smart contract functionality. It allows developers to build and deploy decentralized applications (DApps) on its network. Ether (ETH) is the native cryptocurrency of Ethereum, used to compensate participants who perform computations and validate transactions.

Ethereum is a blockchain platform that supports smart contracts, and it transitioned from a Proof-of-Work to a Proof-of-Stake consensus mechanism in 2022, where validators are chosen based on the amount of cryptocurrency they hold and are willing to stake, rather than the computational power they provide. Proof-of-Stake (PoS) is a consensus mechanism used by some blockchain networks, including Ethereum, to achieve agreement on the state of the network. In a PoS system, validators (participants who hold a stake in the network) are chosen to create new blocks and validate transactions based on the amount of cryptocurrency they hold and are willing to "stake" as collateral. The more cryptocurrency a validator stakes, the more likely they are to be chosen to validate transactions and create new blocks.

Here's how it works:

1. Validators lock up a certain amount of cryptocurrency as stake.
2. Validators are chosen to create new blocks and validate transactions based on a combination of factors, including the amount of cryptocurrency they hold and are willing to stake, and a random or deterministic selection process.
3. Validators who successfully validate transactions and create new blocks are rewarded with transaction fees and newly minted cryptocurrency.
4. Validators who behave maliciously or try to attack the network risk losing their staked cryptocurrency as a form of punishment.

The differences between Proof-of-Stake and Proof-of-Work are:

- **Resource Requirement:** Proof-of-Work requires validators (miners) to expend computational resources (electricity and hardware) to solve complex mathematical puzzles, whereas Proof-of-Stake requires validators to stake cryptocurrency.
- **Security:** Both mechanisms aim to secure the network, but they do so in different ways. Proof-of-Work relies on the computational power of miners to secure the network, while Proof-of-Stake relies on the economic incentives of validators to maintain the network's integrity.
- **Environmental Impact:** Proof-of-Work is criticized for its high energy consumption, as mining requires significant computational power. Proof-of-Stake is considered to be more energy-efficient because it doesn't require intense computational calculations.
- **Decentralization:** Both mechanisms have implications for decentralization. Some argue that Proof-of-Work tends to centralize around miners with significant resources, while Proof-of-Stake may lead to centralization among validators with large stakes. However, PoS protocols often implement mechanisms to mitigate centralization risks, such as delegation or slashing.

### What are the Benefits of Staking?

Staking is the use of capital at risk in the form of locked tokens to secure the network, earn yield for providing your resource. The locked tokens represent a vote that contributes in distributed consensus and execution of transactions.

- Earn passive income through the VanEck Ethereum ETN
- Access to staking yield with a product that trades like an ETF
- Contribute to the network's security, a win-win for the investor and the decentralized community

### Risks of Staking

Despite potential benefits pointed out above, there are some risks related to staking crypto assets.

First of all, it is common for users to "vest" or lock up their crypto assets for a specified amount of time under staking terms, meaning they can't withdraw or transfer their assets during this timeframe, even if they need access right away. As a result, investors cannot take advantage of price gains if there are positive moves in prices during the vesting period.

Additionally, in a short period of time, a crypto asset may experience severe market volatility, which could have an effect on the rewards from staking. Therefore, a decline in the price of a coin that you are staking can have a drastic effect on the rewards that you receive from staking, and profits obtained through staking may be countered if the value of the coin drops drastically. Crypto asset bear markets such as the current one can be considered disadvantageous because they are sustained for such a long period of time. Slashing risk in proof-of-stake (PoS) blockchains involves penalties imposed on validators for malicious or faulty behavior. Validators stake crypto assets to participate in consensus. If they breach network rules intentionally or unintentionally, they can lose some staked assets. Scenarios triggering slashing include double signing conflicting blocks, prolonged downtime, Byzantine actions, collusion, and validating invalid data. Penalties vary based on protocols and might include seizing part of the staked funds or temporary suspension. Slashing deters dishonesty and ensures network security by aligning validators' incentives with the blockchain's integrity. Slashing may in some cases result in total loss of staked funds, rewards or a combination thereof. Lastly, staking may result in total loss of funds due to smart contract risk, exploits or bugs in the protocol, or hard forks. Self-custody of staked crypto assets does not circumvent these risks.

Investing in crypto asset can generate passive income by staking them to secure the Blockchain, which provides passive income to their holders. Nonetheless, delayed delivery may cause rewards made by the network to take a while to reach investors. Therefore, peak traffic on a blockchain network results in delays, a congestion of transactions, and higher transaction fees because demand exceeds supply and network validators can choose which transactions to process. Hence, payouts and re-investment can be delayed. For individuals relying on crypto asset rewards as a source of income or passive earnings, delays can create financial uncertainty. If rewards are delayed for an extended period, it can disrupt cash flow and affect individuals' financial planning. This is particularly relevant for users who depend on regular rewards for living expenses or other financial obligations. The unpredictability of reward delays can make it challenging for individuals to effectively manage their finances.

### **How does Staking work in Practice for the VanEck Ethereum ETN?**

Staking is now enabled for the VanEck Ethereum ETN. What does this mean for you as investor and what do you need to do to earn additional rewards? Here are the key features of how staking is done through the VanEck Ethereum ETN.

- The staking methods we employ are fully non-custodial, that means that the Custodian of the ETNs assets remains in full control of the staked assets. There is no lending risk involved.
- Investors of the Ethereum ETN do not need to take any action, if rewards are paid out, they will be accounted for in the coin entitlement of the ETN. There is no difference whether you acquired the ETN last year or last week, the total staking rewards acquired during last timeframe will be equally distributed (minus the staking provider fees).
- Any staking rewards will be included in the end of day NAV on a daily basis with a cut-off point at 4pm CET.
- How does staking work in practice in case of the ETN?
  1. VanEck utilizes the Physical ETH held by the ETN for staking by instructing the custodian to deposit ETH on a validator deposit address. The validator node is owned and maintained by the staking provider, but control of the deposited ETH remains at the custodian. The control of the deposited ETH never leaves the cold storage of the custodian.
  2. Once successfully deposited on the validator node, the validator node receives consensus layer and execution layer rewards on continuous basis.
  3. The accrued rewards are reinvested (and sometimes also staked again) into the note on a daily basis. The accrued rewards are reflected in the ETNs performance
  4. This process is repeated, scaled up or down depending on network and market circumstances to ensure the Ethereum ETN remains sufficiently redeemable on any given business day. We have processes and monitoring in place to manage the liquidity requirements of the ETN.

**Frequently Asked Questions:**

- Can I still buy and sell the ETN daily despite the lock-up of collateral?  
Yes, the functionality of the ETN remains the same. You can still buy, sell and hold the ETN like any other exchange traded product.
- What is the typical staking reward for Ethereum?  
The staking rewards depend on a number of factors that are out of our control such as the number of validators on the network and the demand for Ethereum transactions. The staking yield for Ethereum generally lies between 3 to 5% per annum. The yield has been as high as 6 to 7 % in 2023 but also as low as 3%. Ethereum remains an innovative technology and staking comes with significant uncertainty and risk just like the technology itself.
- How do Ethereum ETN investors receive staking rewards?  
Any staking rewards resulting from staking the collateral of the note, minus the staking provider fee, are included in the NAV at the end of each trading day.
- Does staking mean that any staked collateral is not in cold storage?  
Generally, staking is non-custodial, meaning that access to the staked assets remain at the depositor. The wallets from which we deposit to validators remain in cold-storage, and therefore also the access to withdraw the staked assets and receive staking rewards.
- Is any of the ETH lend out?  
No, VanEck does not lend out ETH.
- Do I need to pay any taxes on the staking rewards?  
For an assessment of your taxation, please contact your tax advisor or consult your local tax authority for more information. This information does not constitute tax advice and cannot replace it.

**Costs of Staking**

Fees on staking rewards would be:

	Percent
Gross staking reward	100%
Staking Fees	-25%
Net staking reward*	75%

\*This is the portion of the gross reward that may be included in the NAV of the ETN. Staking rewards are not guaranteed. Staking yield is not guaranteed.



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