

|                                                  | <b>Proof of Work</b>                                                                                                  | <b>Proof of Stake</b>                                                                                                                      |
|--------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Open-membership</b>                           | Acquiring mining hardware from manufacturer<br>- 51% attacker can collude with an allow list to prevent new entrants. | Staking 32 ETH on the execution chain<br>- 51% attacker can collude with an exclude list to prevent new entrants.                          |
| <b>Block production relative to stake</b>        | Yes.                                                                                                                  | Yes.                                                                                                                                       |
| <b>Activate participation</b>                    | Yes, they must solve a computational puzzle.                                                                          | Yes, casting votes every epoch.                                                                                                            |
| <b>Block finality</b>                            | Weight-based finality.                                                                                                | Weight-based, then Absolute finality.                                                                                                      |
| <b>Forced to pick one parent block</b>           | Yes, pick a block before solving a puzzle.                                                                            | Yes, double-voting is slashable.                                                                                                           |
| <b>Unpredictable block proposer</b>              | Yes, it depends on who solves the puzzle first.                                                                       | No, known 2 epochs (~12 minutes) in advance.                                                                                               |
| <b>Publicly verifiable transcript</b>            | Yes, objective from genesis.                                                                                          | No, subjective. Only online Validators can find canonical chain and trusted source needed to find latest checkpoint upon returning online. |
| <b>Gracefully handle outages</b>                 | Block production is reduced until puzzle difficulty is reset.                                                         | Penalises and may eject non-cooperative Validators until good service is returned.                                                         |
| <b>Forced distribution of newly issued coins</b> | Yes, the operational cost for mining is very expensive.                                                               | No, but coin issuance does not need to subsidise the operational cost.                                                                     |
| <b>Eventually distributed yield</b>              | Yes.                                                                                                                  | Yes (MEV is independent of PoS).                                                                                                           |
| <b>Rewards for uptime only</b>                   | Yes.                                                                                                                  | Yes.                                                                                                                                       |
| <b>Frequency of payments</b>                     | Only upon solving a block – may be never if the miner is insignificant.                                               | Yes, frequent sweeps of profit (post Shanghai).                                                                                            |

