

## Environment-related Impacts Related to Crypto-assets

Crypto Asset	Consensus Mechanism	Incentive Mechanism	Period Start	Period End	Energy Consumption	Sources & Methodology	Renewable energy consumption	Energy intensity	Scope 1 DLT GHG	Scope 2 DLT GHG	GHG Intensity	Key Energy Sources & Methodology	Key GHG Sources & Methodology
Bitcoin	Proof of Work (PoW)	See below	2024-12-15	2024-12-28	162,539,993,288	See below	31.07	28.69	0.00	69,043,981.86	12.19	See below	See below
Ethereum	Proof of Stake (PoS)	See below	2024-12-15	2024-12-28	5,988,860.56	See below	31.53	0.00	0.00	1,922.64	0.00	See below	See below
Tether	Token / No Consensus Algorithm	See below	2024-12-15	2024-12-28	11,886.88	See below	N/A	N/A	N/A	N/A	N/A	N/A	N/A
BNB Chain	Proof of Stake (PoS)	See below	2024-12-15	2024-12-28	18,634.88	See below	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Solana	Proof of Stake (PoS)	See below	2024-12-15	2024-12-28	15,167,996.09	See below	31.21	0.00	0.00	4,750.62	0.00	See below	See below
USDC	Token / No Consensus Algorithm	See below	2024-12-15	2024-12-28	38,916.43	See below	N/A	N/A	N/A	N/A	N/A	N/A	N/A
XRPL	Byzantine-Fault Tolerant (BFT)	See below	2024-12-15	2024-12-28	366,889.10	See below	28.38	0.00	0.00	148.80	0.00	See below	See below
Dogecoin	Proof of Work (PoW)	See below	2024-12-15	2024-12-28	7,583,962,030	See below	31.07	0.67	0.00	3,221,526.75	0.29	See below	See below
TRON	Proof of Stake (PoS)	See below	2024-12-15	2024-12-28	3,498,572.41	See below	27.86	0.00	0.00	1,316.88	0.00	See below	See below
Cardano	Proof of Stake (PoS)	See below	2024-12-15	2024-12-28	576,521.75	See below	32.45	0.00	0.00	200.53	0.00	See below	See below







































OKT Chain	Proof of Stake (PoS)	See below	2024-12-15	2024-12-28	618.30	See below	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Swell	Token / No Consensus Algorithm	See below	2024-12-15	2024-12-28	90.71	See below	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Syrup	Token / No Consensus Algorithm	See below	2024-12-15	2024-12-28	37.01	See below	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Incentive Mechanism	
Proof of Work (PoW)	A Proof-of-Work (PoW) consensus mechanism incentivizes miners to secure the network by publishing updates to the ledger in the form of blocks, containing newly submitted and verified transactions. Miners compete to solve cryptographic puzzles, and the first to succeed earns newly minted crypto-assets (block reward) and user-paid transaction fees. Misconduct, such as attempting to add invalid blocks or rewrite the history of the ledger, results in wasted computational resources and opportunity costs, creating an economic penalty that discourages dishonest behavior.
Proof of Stake (PoS)	A Proof-of-Stake (PoS) consensus mechanism incentivizes validators to secure the network and validate transactions by staking their own crypto-assets as collateral. Validators are selected to create new blocks based on the amount of cryptocurrency they hold and are willing to 'stake', rather than through computational power. If validators act honestly, they earn rewards through transaction fees; however, malicious behavior or proposing invalid blocks can lead to a reduction of their staked assets, creating an economic penalty that discourages misconduct and ensures network integrity.
Token / No Consensus Algorithm	Tokens do not have an own consensus mechanism, but rely on the consensus mechanism of one or multiple underlying crypto-asset networks. Depending on the token design, incentive mechanisms arise from the utility, scarcity, or governance rights.
Byzantine-Fault Tolerant (BFT)	Byzantine-Fault-Tolerant (BFT) consensus mechanisms, such as Proof of Authority (PoA), Practical Byzantine Fault Tolerance (PBFT), Byzantine Agreement (BA) or similar mechanisms, secure the network through a predefined set of validators who are trusted to validate transactions and add blocks to the ledger. Unlike open networks where anyone can participate (as in Proof-of-Work or Proof-of-Stake), BFT and similar mechanisms operate with known and vetted participants, often selected by a governing entity. Validators are incentivized to maintain the network's integrity through monetary rewards or external motivations, such as institutional trust or regulatory obligations. Malicious actions, such as submitting invalid transactions or failing to participate in consensus, can result in penalties, removal from the validator set, or other repercussions, creating an economic and reputational deterrent to dishonest behavior. Validators reach consensus by verifying transactions and proposing blocks, and, as long as a majority of validators act honestly, the network remains secure.

<b>Additional Information</b>	
Sources & Methodologies	Data provided by CCRI; underlying methodologies available at: <a href="https://carbon-ratings.com/dl/whitepaper-mica-methods-2024">https://carbon-ratings.com/dl/whitepaper-mica-methods-2024</a> and <a href="https://docs.mica.api.carbon-ratings.com">https://docs.mica.api.carbon-ratings.com</a>
Key Energy Sources & Methodologies	Data provided by CCRI; underlying methodologies available at: <a href="https://carbon-ratings.com/dl/whitepaper-mica-methods-2024">https://carbon-ratings.com/dl/whitepaper-mica-methods-2024</a> and <a href="https://docs.mica.api.carbon-ratings.com">https://docs.mica.api.carbon-ratings.com</a>
Key GHG Sources & Methodologies	Data provided by CCRI; underlying methodologies available at: <a href="https://carbon-ratings.com/dl/whitepaper-mica-methods-2024">https://carbon-ratings.com/dl/whitepaper-mica-methods-2024</a> and <a href="https://docs.mica.api.carbon-ratings.com">https://docs.mica.api.carbon-ratings.com</a>