Solana SOL (SOL) ESG Disclosure

Reporting period: 2024-06-09 to 2025-06-09

ESG (Environmental, Social, and Governance) regulations for crypto assets aim to address their environmental impact (e.g., energy-intensive mining), promote transparency, and ensure ethical governance practices to align the crypto industry with broader sustainability and societal goals. These regulations encourage compliance with standards that mitigate risks and foster trust in digital assets.

General Information

Name	Coinmotion Oy
Relevant legal entity identifier	743700PZG5RRF7SA4Q58
Name of the crypto-asset	Solana SOL
Consensus Mechanism	Solana uses a unique combination of Proof of History (PoH) and Proof of Stake (PoS) to achieve high throughput, low latency, and robust security. Here's a detailed explanation of how these mechanisms work: Core Concepts 1. Proof of History (PoH): Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, creating a historical record that proves that an event has occurred at a specific moment in time. Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, enabling the network to efficiently agree on the sequence of transactions. 2. Proof of Stake (PoS): Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks. Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while enhancing the network's security. Consensus Process 1. Transaction Validation: Transactions are broadcast to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds. 2. PoH Sequence Generation: A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network. 3. Block Production: The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order. 4. Consensus and Finalization: Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized. Security and Economic Incentives 1. Incentives for Validators: Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance. Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently. 2. Security: Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens. Delegated Staking: Token holders can delegate their SOL tokens to validators, enhancing network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators. 3. Economic Penalties: Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.
Incentive Mechanisms and Applicable Fees	Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions. Here's a detailed explanation of the incentive mechanisms and applicable fees: Incentive Mechanisms 4. Validators: Staking Rewards: Validators are chosen based on the number of SOL tokens they

	have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks. Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity. 5. Delegators: Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization. 6. Economic Security: Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network. Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties. Fees Applicable on the Solana Blockchain 7. Transaction Fees: Low and Predictable Fees: Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum. Fee Structure: Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth. 8. Rent Fees: State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network. 9. Smart Contract Fees: Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.
Beginning of the period	2024-06-09
End of the period	2025-06-09

Environmental Indicators

Energy consumption	**6436410.00000 (kWh/a)**
Energy consumption resources and methodologies	For the calculation of energy consumptions, the so called “bottom-up” approach is being used. The nodes are considered to be the central factor for the energy consumption of the network. These assumptions are made on the basis of empirical findings through the use of public information sites, open-source crawlers and crawlers developed in-house. The main determinants for estimating the hardware used within the network are the requirements for operating the client software. The energy consumption of the hardware devices was measured in certified test laboratories. When calculating the energy consumption, we used - if available - the Functionally Fungible Group Digital Token Identifier (FFG DTI) to determine all implementations of the asset of question in scope and we update the mappings regulary, based on data of the Digital Token Identifier Foundation.
Renewable energy consumption	**27.008179797**
Energy intensity	0.00000 (kWh)
Scope 1 DLT GHG emissions - Controlled	0.00000 (tCO2e/a)
Scope 2 DLT GHG emissions - Purchased	2181.10041 (tCO2e/a)
GHG intensity	0.00000 (kgCO2e)
Key energy sources and methodologies	To determine the proportion of renewable energy usage, the locations of the nodes are to be determined using public information sites, open-source crawlers and crawlers developed in-house. If no information is available on the geographic distribution of the nodes, reference networks are used which are comparable in terms of their incentivization structure and consensus mechanism. This geo-information is merged with public information from Our World in Data, see citation. The intensity is calculated as the marginal energy cost wrt. one more transaction. Ember (2025);

	Energy Institute - Statistical Review of World Energy (2024) – with major processing by Our World in Data. “Share of electricity generated by renewables – Ember and Energy Institute” [dataset]. Ember, “Yearly Electricity Data Europe”; Ember, “Yearly Electricity Data”; Energy Institute, “Statistical Review of World Energy” [original data]. Retrieved from https://ourworldindata.org/grapher/share-electricity-renewables
Key GHG sources and methodologies	To determine the GHG Emissions, the locations of the nodes are to be determined using public information sites, open-source crawlers and crawlers developed in-house. If no information is available on the geographic distribution of the nodes, reference networks are used which are comparable in terms of their incentivization structure and consensus mechanism. This geo-information is merged with public information from Our World in Data, see citation. The intensity is calculated as the marginal emission wrt. one more transaction. Ember (2025); Energy Institute - Statistical Review of World Energy (2024) – with major processing by Our World in Data. “Carbon intensity of electricity generation – Ember and Energy Institute” [dataset]. Ember, “Yearly Electricity Data Europe”; Ember, “Yearly Electricity Data”; Energy Institute, “Statistical Review of World Energy” [original data]. Retrieved from https://ourworldindata.org/grapher/carbon-intensity-electricity Licenced under CC BY 4.0

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