RON

Sustainability indicators for crypto-assets

Disclosures pursuant to Article 66(5) MiCA

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Preamble

About the Crypto-Asset Service Provider (CASP)

Name of the CASP: RONIN EM LIMITED
Street and number: 19, ALPHA BUSINESS CENTRE, Agios Athanasios
City: LIMASSOL
Country: Republic of Cyprus
LEI: 213800V83W83UL8WR118

About this report

This disclosure serves as evidence of compliance with the regulatory requirements of Article 66(5) MiCA. Under this provision, crypto-asset service providers are required to disclose information on the principal adverse impacts on the climate and the environment. In particular, this disclosure complies with "Commission Delegated Regulation (EU) 2025/422 of 17 December 2024 supplementing Regulation (EU) 2023/1114 of the European Parliament and of the Council with regard to regulatory technical standards specifying the content, methodologies and presentation of information in respect of sustainability indicators in relation to adverse impacts on the climate and other environment-related adverse impacts". The optional information referred to in Article 6(8), points (a) to (d), of Delegated Regulation (EU) 2025/422 is not included.

This report remains valid until material changes occur in the underlying data, in which case it will be updated promptly.

Overview

This is an overview of the core indicator "energy consumption" and does not constitute the disclosure required under Article 66(5) MiCA. The full disclosure is set out below.

#	Crypto-Asset Name	Crypto-Asset FFG	Energy consumption (kWh per calendar year)
1	Bitcoin	V15WLZJMF	175,142,276,572.64
2	Dogecoin	35PLJP6J7	5,459,052,906.10
3	Litecoin	D74JZ1VRD	1,004,491,960.92
4	Bitcoin Cash	919BF3W7L	610,445,589.92
5	Solana SOL	6QZ1LNC12	6,296,250.00
6	TRON TRX	HZ9HHNPLG	3,762,406.47
7	Ethereum Eth	D5RG2FHH0	2,197,008.00
8	Gram	KK12JMBTX	1,408,170.00
9	NEAR Protocol	MXXM59Z0T	920,403.70
10	Avalanche AVAX	S6JCBF70N	829,457.39

#	Crypto-Asset Name	Crypto-Asset FFG	Energy consumption (kWh per calendar year)
11	Cardano ADA	76QS7QCXB	773,946.00
12	Polkadot DOT	SGD9NLTRG	642,546.00
13	Ripple XRP	42PHJB2BS	456,256.90
14	USDC	TJWK5QTRK	442,303.00
15	Sui	64RFW3D8P	365,292.00
16	Hyperliquid	HLTPNVXN0	67,014.00
17	ChainLink Token	3R3J70FDR	8,164.00
18	Uniswap	XMB84LZBZ	8,021.56
19	Aave Token	H618RN577	5,465.62
20	EURC	13XTMPZT3	2,903.66
21	Arbitrum	44TP35HF9	1,164.83
22	Optimism	9NRMM2RC4	510.11

Sustainability indicators



Bitcoin

BTC | V15WLZJMF

Quantitative information

Quantitative sustainability indicators for Bitcoin

Field	Value	Unit
S.1 Name	RONIN EM LIMITED	/
S.2 Relevant legal entity identifier	213800V83W83UL8WR118	/
S.3 Name of the crypto-asset	Bitcoin	/
S.6 Beginning of the period to which the disclosure relates	2025-11-04	/
S.7 End of the period to which the disclosure relates	2026-11-04	/
S.8 Energy consumption	175142276572.64169	kWh/a
S.10 Renewable energy consumption	34.4781471084	%
S.11 Energy intensity	4.20087	kWh
S.12 Scope 1 DLT GHG emissions – Controlled	0.00000	tCO2e
S.13 Scope 2 DLT GHG emissions – Purchased	72157928.12046	tCO2e
S.14 GHG intensity	1.73074	kgCO2e

Qualitative information

S.4 Consensus Mechanism

Bitcoin is present on the following networks: Bitcoin, Lightning Network.

Bitcoin uses Proof-of-Work. Miners assemble valid transactions into candidate blocks and search for a block hash below the current target. Nodes verify the proof and transactions and follow the valid chain with the greatest accumulated proof-of-work.

S.5 Incentive Mechanisms and Applicable Fees

Bitcoin is present on the following networks: Bitcoin, Lightning Network.

The miner of an accepted block may receive newly issued BTC under the protocol's halving schedule and the transaction fees included in that block. Users choose BTC-denominated fees, generally by fee rate and transaction size, and miners select transactions for inclusion according to their policies.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

For the calculation of energy consumptions, the so called 'top-down' approach is being used, within which an economic calculation of the miners is assumed. Miners are persons or devices that actively participate in the proof-of-work consensus mechanism. The miners are considered to be the central factor for the energy consumption of the network. Hardware is pre-selected based on the consensus mechanism's hash algorithm: SHA-256. A current profitability threshold is determined on the basis of the revenue and cost structure for mining operations. Only Hardware above the profitability threshold is considered for the network. The energy consumption of the network can be determined by taking into account the distribution for the hardware, the efficiency levels for operating the hardware and on-chain information regarding the miners' revenue opportunities. If significant use of merge mining is known, this is taken into account. 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. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

To determine the energy consumption of a token, the energy consumption of the network(s) lightning_network is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

S.15 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.

S.16 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.

Dogecoin

DOGE | 35PLJP6J7

Quantitative information

Quantitative sustainability indicators for Dogecoin

Field	Value	Unit
S.1 Name	RONIN EM LIMITED	/
S.2 Relevant legal entity identifier	213800V83W83UL8WR118	/
S.3 Name of the crypto-asset	Dogecoin	/
S.6 Beginning of the period to which the disclosure relates	2025-11-04	/
S.7 End of the period to which the disclosure relates	2026-11-04	/
S.8 Energy consumption	5459052906.10287	kWh/a
S.10 Renewable energy consumption	34.4781471084	%
S.11 Energy intensity	0.38476	kWh
S.12 Scope 1 DLT GHG emissions – Controlled	0.00000	tCO2e
S.13 Scope 2 DLT GHG emissions – Purchased	2249108.29591	tCO2e
S.14 GHG intensity	0.15852	kgCO2e

Qualitative information

S.4 Consensus Mechanism

Dogecoin uses Scrypt Proof of Work and supports AuxPoW merged mining, allowing work submitted for Litecoin mining to also support Dogecoin block production. Nodes validate transactions and proof-of-work blocks and follow the valid chain with the greatest cumulative work.

S.5 Incentive Mechanisms and Applicable Fees

Miners receive a fixed subsidy of 10,000 DOGE for each valid block and the transaction fees included in that block. Users pay DOGE-denominated fees determined by transaction data size and applicable relay and mining policies. A higher fee rate can affect transaction selection when block space is constrained.

S.9 Energy consumption sources and methodologies

For the calculation of energy consumptions, the so called 'top-down' approach is being used, within which an economic calculation of the miners is assumed. Miners are persons or devices that actively participate in the proof-of-work consensus mechanism. The miners are considered to be the central factor for the energy consumption of the network. Hardware is pre-selected based on the consensus mechanism's hash algorithm: Scrypt. A current profitability threshold is determined on the basis of the revenue and cost structure for mining operations. Only Hardware above the profitability threshold is considered for the network. The energy consumption of the network can be determined by taking into account the distribution for the hardware, the efficiency levels for operating the hardware and on-chain information regarding the miners' revenue opportunities. If significant use of merge mining is known, this is taken into account. 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. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

S.15 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.

S.16 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.

Litecoin

LTC | D74JZ1VRD

Quantitative information

Quantitative sustainability indicators for Litecoin

Field	Value	Unit
S.1 Name	RONIN EM LIMITED	/
S.2 Relevant legal entity identifier	213800V83W83UL8WR118	/
S.3 Name of the crypto-asset	Litecoin	/
S.6 Beginning of the period to which the disclosure relates	2025-11-04	/
S.7 End of the period to which the disclosure relates	2026-11-04	/
S.8 Energy consumption	1004491960.92037	kWh/a
S.10 Renewable energy consumption	34.4781471084	%
S.11 Energy intensity	0.03307	kWh
S.12 Scope 1 DLT GHG emissions – Controlled	0.00000	tCO2e
S.13 Scope 2 DLT GHG emissions – Purchased	413846.73154	tCO2e
S.14 GHG intensity	0.01363	kgCO2e

Qualitative information

S.4 Consensus Mechanism

Litecoin uses Proof of Work with the Scrypt hashing algorithm. Miners construct candidate blocks and search for a block header hash below the current difficulty target. Nodes validate the proof, transactions, and protocol rules, and the chain with the greatest accumulated work determines the accepted ledger history.

S.5 Incentive Mechanisms and Applicable Fees

The miner of an accepted block receives newly issued LTC under Litecoin's scheduled halving rules and the transaction fees included in that block. Users specify LTC-denominated fees based on transaction data size and the selected fee rate. Nodes and miners may prioritise transactions according to their fee rates when available block space is limited.

S.9 Energy consumption sources and methodologies

For the calculation of energy consumptions, the so called 'top-down' approach is being used, within which an economic calculation of the miners is assumed. Miners are persons or devices that actively participate in the proof-of-work consensus mechanism. The miners are considered to be the central factor for the energy consumption of the network. Hardware is pre-selected based on the consensus mechanism's hash algorithm: Scrypt. A current profitability threshold is determined on the basis of the revenue and cost structure for mining operations. Only Hardware above the profitability threshold is considered for the network. The energy consumption of the network can be determined by taking into account the distribution for the hardware, the efficiency levels for operating the hardware and on-chain information regarding the miners' revenue opportunities. If significant use of merge mining is known, this is taken into account. 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. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

S.15 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.

S.16 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.

Bitcoin Cash

BCH | 919BF3W7L

Quantitative information

Quantitative sustainability indicators for Bitcoin Cash

Field	Value	Unit
S.1 Name	RONIN EM LIMITED	/
S.2 Relevant legal entity identifier	213800V83W83UL8WR118	/
S.3 Name of the crypto-asset	Bitcoin Cash	/
S.6 Beginning of the period to which the disclosure relates	2025-11-04	/
S.7 End of the period to which the disclosure relates	2026-11-04	/
S.8 Energy consumption	610445589.91597	kWh/a
S.10 Renewable energy consumption	34.4781471084	%
S.11 Energy intensity	0.06460	kWh
S.12 Scope 1 DLT GHG emissions – Controlled	0.00000	tCO2e
S.13 Scope 2 DLT GHG emissions – Purchased	251501.17870	tCO2e
S.14 GHG intensity	0.02662	kgCO2e

Qualitative information

S.4 Consensus Mechanism

Bitcoin Cash is present on the following networks: Bitcoin Cash, Smart Bitcoin Cash.

Bitcoin Cash uses SHA-256 Proof-of-Work. Miners assemble valid transactions into candidate blocks and search for a block hash below the target. Nodes verify the proof and transactions and follow the valid chain with the greatest accumulated proof-of-work.

Smart Bitcoin Cash is a Bitcoin Cash sidechain using Tendermint Byzantine fault-tolerant consensus. Its validator quorum is elected for defined epochs through voting recorded on Bitcoin Cash, with mining-pool hash-power votes and planned BCH-holder stake votes. Validators provide collateral and may be penalized for defined misconduct.

S.5 Incentive Mechanisms and Applicable Fees

Bitcoin Cash is present on the following networks: Bitcoin Cash, Smart Bitcoin Cash.

The miner of an accepted block may receive newly issued BCH under the protocol's halving schedule and the transaction fees included in that block. Users pay BCH-denominated transaction fees, generally determined by transaction size, fee rate and the inclusion policies of miners.

Users pay gas fees in BCH. Under the documented protocol design, half of collected gas fees is allocated to eligible validators after the required lock period and half is burned. Validators must provide BCH collateral, which may be slashed for misconduct. Transfers through a gateway may involve separate operator terms or charges.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

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. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

For the calculation of energy consumptions, the so called 'top-down' approach is being used, within which an economic calculation of the miners is assumed. Miners are persons or devices that actively participate in the proof-of-work consensus mechanism. The miners are considered to be the central factor for the energy consumption of the network. Hardware is pre-selected based on the consensus mechanism's hash algorithm: SHA-256. A current profitability threshold is determined on the basis of the revenue and cost structure for mining operations. Only Hardware above the profitability threshold is considered for the network. The energy consumption of the network can be determined by taking into account the distribution for the hardware, the efficiency levels for operating the hardware and on-chain information regarding the miners' revenue opportunities. If significant use of merge mining is known, this is taken into account. 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. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

S.15 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.

S.16 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.

Solana SOL

SOL | 6QZ1LNC12

Quantitative information

Quantitative sustainability indicators for Solana SOL

Field	Value	Unit
S.1 Name	RONIN EM LIMITED	/
S.2 Relevant legal entity identifier	213800V83W83UL8WR118	/
S.3 Name of the crypto-asset	Solana SOL	/
S.6 Beginning of the period to which the disclosure relates	2025-11-04	/
S.7 End of the period to which the disclosure relates	2026-11-04	/
S.8 Energy consumption	6296250.00000	kWh/a
S.10 Renewable energy consumption	38.5831139958	%
S.11 Energy intensity	0.00000	kWh
S.12 Scope 1 DLT GHG emissions – Controlled	0.00000	tCO2e
S.13 Scope 2 DLT GHG emissions – Purchased	2133.60452	tCO2e
S.14 GHG intensity	0.00000	kgCO2e

Qualitative information

S.4 Consensus Mechanism

Solana uses stake-weighted Proof of Stake with Tower BFT. A scheduled leader orders transactions and produces block entries using Proof of History as a cryptographic clock, while validators replay the entries and submit stake-weighted votes. Confirmed votes and lockout rules determine finality.

S.5 Incentive Mechanisms and Applicable Fees

Validators and delegators receive inflation-funded staking rewards after validator commission. Each transaction pays a base fee in SOL and may include a prioritization fee. Half of the base fee is burned and half is paid to the validator, while the prioritization fee is paid to the validator. Accounts may also require a refundable rent-exempt reserve.

S.9 Energy consumption sources 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. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

S.15 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.

S.16 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.

TRON TRX

TRX | HZ9HHNPLG

Quantitative information

Quantitative sustainability indicators for TRON TRX

Field	Value	Unit
S.1 Name	RONIN EM LIMITED	/
S.2 Relevant legal entity identifier	213800V83W83UL8WR118	/
S.3 Name of the crypto-asset	TRON TRX	/
S.6 Beginning of the period to which the disclosure relates	2025-11-04	/
S.7 End of the period to which the disclosure relates	2026-11-04	/
S.8 Energy consumption	3762406.47198	kWh/a
S.10 Renewable energy consumption	33.4000000445	%
S.11 Energy intensity	0.00002	kWh
S.12 Scope 1 DLT GHG emissions – Controlled	0.00000	tCO2e
S.13 Scope 2 DLT GHG emissions – Purchased	1478.62574	tCO2e
S.14 GHG intensity	0.00001	kgCO2e

Qualitative information

S.4 Consensus Mechanism

TRON TRX is present on the following networks: Base, Tron.

Base is an OP Stack optimistic rollup. A sequencer orders and executes Layer-2 transactions, while transaction data and state commitments are submitted to Ethereum for settlement. Invalid state claims can be challenged through the OP Stack fault-proof process.

TRON uses Delegated Proof of Stake. TRX stakers allocate TRON Power to elect 27 Super Representatives, which produce blocks in a scheduled rotation. A block becomes solidified after at least 19 distinct active Super Representatives have produced a block at that height or above. The active set is recalculated from votes at scheduled maintenance updates.

S.5 Incentive Mechanisms and Applicable Fees

TRON TRX is present on the following networks: Base, Tron.

Base has no native protocol token. Transaction fees are paid in ETH and comprise a Layer-2 execution fee and a Layer-1 fee reflecting the cost of publishing transaction data to Ethereum. Both components vary with the applicable network conditions.

Successful blocks create a production reward for the producing Super Representative and a voter-reward pool shared among the highest-ranked representatives according to votes. Each representative sets a brokerage rate that determines the retained share and the share claimable by voters. Transactions consume Bandwidth, while smart-contract execution also consumes Energy. These resources can be obtained by staking or delegation. If available resources are insufficient, TRX is burned at parameterized rates. TRON has no priority fee and no protocol slashing.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

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. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

To determine the energy consumption of a token, the energy consumption of the network(s) base, tron is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

S.15 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.

S.16 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.

Ethereum Eth

ETH | D5RG2FHH0

Quantitative information

Quantitative sustainability indicators for Ethereum Eth

Field	Value	Unit
S.1 Name	RONIN EM LIMITED	/
S.2 Relevant legal entity identifier	213800V83W83UL8WR118	/
S.3 Name of the crypto-asset	Ethereum Eth	/
S.6 Beginning of the period to which the disclosure relates	2025-11-04	/
S.7 End of the period to which the disclosure relates	2026-11-04	/
S.8 Energy consumption	2197008.00000	kWh/a
S.10 Renewable energy consumption	37.9124101186	%
S.11 Energy intensity	0.00007	kWh
S.12 Scope 1 DLT GHG emissions – Controlled	0.00000	tCO2e
S.13 Scope 2 DLT GHG emissions – Purchased	731.19298	tCO2e
S.14 GHG intensity	0.00002	kgCO2e

Qualitative information

S.4 Consensus Mechanism

Ethereum uses proof of stake through Gasper, which combines the LMD-GHOST fork-choice rule with Casper FFG finality. Validators stake ETH, propose blocks in assigned slots and attest to block validity. Weighted attestations determine the canonical chain and justify and finalize checkpoints. Defined consensus faults can result in slashing.

S.5 Incentive Mechanisms and Applicable Fees

Validators receive newly issued ETH for block proposals, attestations and other consensus duties and may receive priority fees and execution-layer value associated with proposed blocks. Each transaction pays gas in ETH. The EIP-1559 base fee is burned and an optional priority fee is paid to the block proposer. Missed duties reduce rewards, while defined misconduct can cause slashing.

S.9 Energy consumption sources 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. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

S.15 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.

S.16 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.

Gram

GRAM | KK12JMBTX

Quantitative information

Quantitative sustainability indicators for Gram

Field	Value	Unit
S.1 Name	RONIN EM LIMITED	/
S.2 Relevant legal entity identifier	213800V83W83UL8WR118	/
S.3 Name of the crypto-asset	Gram	/
S.6 Beginning of the period to which the disclosure relates	2025-11-04	/
S.7 End of the period to which the disclosure relates	2026-11-04	/
S.8 Energy consumption	1408170.00000	kWh/a
S.10 Renewable energy consumption	37.9124101186	%
S.11 Energy intensity	0.00003	kWh
S.12 Scope 1 DLT GHG emissions – Controlled	0.00000	tCO2e
S.13 Scope 2 DLT GHG emissions – Purchased	468.65738	tCO2e
S.14 GHG intensity	0.00001	kgCO2e

Qualitative information

S.4 Consensus Mechanism

The Open Network uses Proof of Stake with Catchain 2.0, a Simplex-based Byzantine fault-tolerant consensus protocol. Stake-weighted validator groups operate the masterchain and shardchains. A selected leader proposes a block, validators notarize valid proposals, and a block is finalized when finalization votes representing at least two thirds of validator weight form a quorum.

S.5 Incentive Mechanisms and Applicable Fees

Validators bond GRAM and receive protocol rewards for completed validation rounds. Low participation or rule violations may reduce rewards, trigger fines, or lead to exclusion. Transactions pay storage, computation, forwarding, action, and import fees in GRAM where applicable. Network configuration sets these fee components, and forwarding charges are divided between source- and destination-shard validators.

S.9 Energy consumption sources 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. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

S.15 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.

S.16 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.

NEAR Protocol

NEAR | MXXM59Z0T

Quantitative information

Quantitative sustainability indicators for NEAR Protocol

Field	Value	Unit
S.1 Name	RONIN EM LIMITED	/
S.2 Relevant legal entity identifier	213800V83W83UL8WR118	/
S.3 Name of the crypto-asset	NEAR Protocol	/
S.6 Beginning of the period to which the disclosure relates	2025-11-04	/
S.7 End of the period to which the disclosure relates	2026-11-04	/
S.8 Energy consumption	920403.69748	kWh/a
S.10 Renewable energy consumption	37.4190925596	%
S.11 Energy intensity	0.00010	kWh
S.12 Scope 1 DLT GHG emissions – Controlled	0.00000	tCO2e
S.13 Scope 2 DLT GHG emissions – Purchased	309.95280	tCO2e
S.14 GHG intensity	0.00003	kgCO2e

Qualitative information

S.4 Consensus Mechanism

NEAR Protocol is present on the following networks: Binance Smart Chain, Ethereum, Near Protocol.

BNB Smart Chain uses Proof-of-Staked-Authority. Active validators selected according to bonded BNB take turns producing blocks and vote on finality, while BNB holders may delegate stake to validator candidates.

Ethereum uses proof of stake through Gasper, which combines the LMD-GHOST fork-choice rule with Casper FFG finality. Validators stake ETH, propose blocks in assigned slots and attest to block validity. Weighted attestations determine the canonical chain and justify and finalize checkpoints. Defined consensus faults can result in slashing.

NEAR uses Proof of Stake with sharded block production. Validators are assigned block-production and chunk-validation duties according to staked and delegated NEAR. Validators attest to shard data, and the protocol combines validated chunks into the canonical chain under its block-finality rules.

S.5 Incentive Mechanisms and Applicable Fees

NEAR Protocol is present on the following networks: Binance Smart Chain, Ethereum, Near Protocol.

Validators and delegators can receive BNB rewards derived from transaction fees, subject to validator commission and reward-distribution rules. Transfers and smart-contract execution incur gas fees in BNB. Protocol penalties may include loss of rewards, jailing or slashing of validator self-stake for specified violations.

Validators receive newly issued ETH for block proposals, attestations and other consensus duties and may receive priority fees and execution-layer value associated with proposed blocks. Each transaction pays gas in ETH. The EIP-1559 base fee is burned and an optional priority fee is paid to the block proposer. Missed duties reduce rewards, while defined misconduct can cause slashing.

Validators and delegators receive protocol staking rewards in NEAR. Users pay gas fees in NEAR for transactions and contract execution. A protocol-defined portion of eligible contract-execution fees may be assigned to the contract account, while the remaining fee is burned. Accounts and contracts must also maintain NEAR balances for occupied storage.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

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. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

To determine the energy consumption of a token, the energy consumption of the network(s) binance_smart_chain, ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

S.15 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.

S.16 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.

Avalanche AVAX

AVAX | S6JCBF70N

Quantitative information

Quantitative sustainability indicators for Avalanche AVAX

Field	Value	Unit
S.1 Name	RONIN EM LIMITED	/
S.2 Relevant legal entity identifier	213800V83W83UL8WR118	/
S.3 Name of the crypto-asset	Avalanche AVAX	/
S.6 Beginning of the period to which the disclosure relates	2025-11-04	/
S.7 End of the period to which the disclosure relates	2026-11-04	/
S.8 Energy consumption	829457.39485	kWh/a
S.10 Renewable energy consumption	36.3152910542	%
S.11 Energy intensity	0.00037	kWh
S.12 Scope 1 DLT GHG emissions – Controlled	0.00000	tCO2e
S.13 Scope 2 DLT GHG emissions – Purchased	311.43289	tCO2e
S.14 GHG intensity	0.00014	kgCO2e

Qualitative information

S.4 Consensus Mechanism

Avalanche AVAX is present on the following networks: Avalanche, Avalanche X Chain.

The Avalanche C-Chain uses Snowman consensus with stake-weighted validators. Validators repeatedly sample subsets of other validators and update their preference until a block reaches the protocol confidence threshold. Accepted blocks form the C-Chain's linear history.

The Avalanche X-Chain uses the Avalanche consensus protocol, which relies on repeated subsampling of validators to reach agreement on transactions.

S.5 Incentive Mechanisms and Applicable Fees

Avalanche AVAX is present on the following networks: Avalanche, Avalanche X Chain.

Primary Network validators and delegators can receive AVAX staking rewards after satisfying protocol participation requirements. The protocol does not ordinarily slash bonded principal. Failure to meet

validation requirements can result in loss of reward eligibility. C-Chain transactions incur AVAX gas fees, which are burned rather than paid to validators.

Primary Network validators and delegators can receive AVAX staking rewards under the network reward rules. X-Chain transactions incur protocol-defined fees in AVAX, and the fees are burned rather than distributed to validators.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

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. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

To determine the energy consumption of a token, the energy consumption of the network(s) avalanche, avalanche_x_chain is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

S.15 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.

S.16 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.

Cardano ADA

ADA | 76QS7QCXB

Quantitative information

Quantitative sustainability indicators for Cardano ADA

Field	Value	Unit
S.1 Name	RONIN EM LIMITED	/
S.2 Relevant legal entity identifier	213800V83W83UL8WR118	/
S.3 Name of the crypto-asset	Cardano ADA	/
S.6 Beginning of the period to which the disclosure relates	2025-11-04	/
S.7 End of the period to which the disclosure relates	2026-11-04	/
S.8 Energy consumption	773946.00000	kWh/a
S.10 Renewable energy consumption	37.4187578605	%
S.11 Energy intensity	0.00109	kWh
S.12 Scope 1 DLT GHG emissions – Controlled	0.00000	tCO2e
S.13 Scope 2 DLT GHG emissions – Purchased	260.63169	tCO2e
S.14 GHG intensity	0.00037	kgCO2e

Qualitative information

S.4 Consensus Mechanism

Cardano uses the Ouroboros Proof-of-Stake protocol. Time is divided into epochs and slots, and stake pools are selected to produce blocks with probability related to the active ADA delegated to them. Nodes apply the protocol's chain-selection rules when adopting the ledger history.

S.5 Incentive Mechanisms and Applicable Fees

Stake pool operators and delegators can receive ADA rewards from protocol issuance and pooled transaction fees, subject to pool operating costs, margins and performance. Transactions incur ADA-denominated fees calculated from protocol parameters and transaction size. Fees are pooled for epoch-level reward distribution rather than paid directly to the block producer.

S.9 Energy consumption sources 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. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

S.15 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.

S.16 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.

Polkadot DOT

DOT | SGD9NLTRG

Quantitative information

Quantitative sustainability indicators for Polkadot DOT

Field	Value	Unit
S.1 Name	RONIN EM LIMITED	/
S.2 Relevant legal entity identifier	213800V83W83UL8WR118	/
S.3 Name of the crypto-asset	Polkadot DOT	/
S.6 Beginning of the period to which the disclosure relates	2025-11-04	/
S.7 End of the period to which the disclosure relates	2026-11-04	/
S.8 Energy consumption	642546.00000	kWh/a
S.10 Renewable energy consumption	39.0062350679	%
S.11 Energy intensity	0.00004	kWh
S.12 Scope 1 DLT GHG emissions – Controlled	0.00000	tCO2e
S.13 Scope 2 DLT GHG emissions – Purchased	190.07953	tCO2e
S.14 GHG intensity	0.00001	kgCO2e

Qualitative information

S.4 Consensus Mechanism

Polkadot DOT is present on the following networks: Astar, Polkadot, Statemint.

Astar operates as a parachain connected to the Polkadot Relay Chain. Astar collators collect transactions and produce candidate blocks, while Polkadot validators validate parachain state transitions and provide finality through the relay-chain consensus.

Polkadot uses Nominated Proof of Stake to select a validator set backed by DOT nominators. BABE assigns block-production opportunities to validators, and GRANDPA finalizes relay-chain blocks after the required validator agreement. Relay-chain validators also verify parachain state-transition candidates submitted by collators.

Statemint was renamed Polkadot Asset Hub. It is a Polkadot system parachain whose collators assemble candidate blocks and submit them to Polkadot relay-chain validators. Relay-chain validators verify parachain state transitions, and Polkadot consensus provides finality for accepted Asset Hub blocks.

S.5 Incentive Mechanisms and Applicable Fees

Polkadot DOT is present on the following networks: Astar, Polkadot, Statemint.

Transactions and smart-contract execution on Astar incur fees in ASTR under the applicable weight and gas rules. Astar's dApp Staking mechanism distributes ASTR rewards to eligible stakers and registered dApps under the protocol's current reward parameters.

Validators and nominators receive DOT staking rewards after validator commission and may be subject to slashing for defined offences. Users pay transaction fees based on transaction weight, encoded length, and any optional tip. Parachains obtain execution capacity through Polkadot's coretime mechanisms, which are separate from ordinary transaction fees.

Polkadot validators receive DOT staking rewards under Polkadot relay-chain rules. Polkadot Asset Hub collators do not receive inflation-funded era rewards and may receive a portion of transaction fees. Users pay fees in DOT or an eligible supported asset, and some asset-management operations require deposits or reserves.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

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. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

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. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

To determine the energy consumption of a token, the energy consumption of the network(s) astar is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset

within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

S.15 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.

S.16 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.

Ripple XRP

XRP | 42PHJB2BS

Quantitative information

Quantitative sustainability indicators for Ripple XRP

Field	Value	Unit
S.1 Name	RONIN EM LIMITED	/
S.2 Relevant legal entity identifier	213800V83W83UL8WR118	/
S.3 Name of the crypto-asset	Ripple XRP	/
S.6 Beginning of the period to which the disclosure relates	2025-11-04	/
S.7 End of the period to which the disclosure relates	2026-11-04	/
S.8 Energy consumption	456256.90491	kWh/a

Qualitative information

S.4 Consensus Mechanism

Ripple XRP is present on the following networks: Binance Smart Chain, Klaytn, Ripple.

BNB Smart Chain uses Proof-of-Staked-Authority. Active validators selected according to bonded BNB take turns producing blocks and vote on finality, while BNB holders may delegate stake to validator candidates.

Klaytn used a modified Istanbul Byzantine Fault Tolerance mechanism in which Governance Council consensus nodes proposed and validated blocks. A block became final after signatures representing more than two thirds of the participating consensus nodes. The Klaytn mainnet transitioned to Kaia through a protocol upgrade on 29 August 2024.

The XRP Ledger uses the XRP Ledger Consensus Protocol. Each server selects a Unique Node List of validators whose proposals it evaluates. Validators iteratively agree on transaction ordering and results, and a ledger version is validated when the required threshold of trusted validators supports it.

S.5 Incentive Mechanisms and Applicable Fees

Ripple XRP is present on the following networks: Binance Smart Chain, Klaytn, Ripple.

Validators and delegators can receive BNB rewards derived from transaction fees, subject to validator commission and reward-distribution rules. Transfers and smart-contract execution incur gas fees in BNB. Protocol penalties may include loss of rewards, jailing or slashing of validator self-stake for specified violations.

Before the transition to Kaia, users paid gas fees in KLAY and consensus nodes received protocol rewards funded by issuance and transaction fees. Portions of rewards were also allocated to ecosystem funds under the applicable network parameters. KLAY was converted to KAIA as part of the Kaia transition, so the former Klaytn reward percentages are not presented as current terms.

The XRP Ledger does not pay protocol rewards to validators and does not use mining or staking. Each transaction specifies an XRP fee that is permanently destroyed rather than paid to a validator. The minimum fee can change through validator voting and rises temporarily under load. Separate XRP reserve requirements apply to accounts and ledger objects but are not transaction fees.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

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. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

To determine the energy consumption of a token, the energy consumption of the network(s) binance_smart_chain, klaytn is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

USDC

USDC | TJWK5QTRK

Quantitative information

Quantitative sustainability indicators for USDC

Field	Value	Unit
S.1 Name	RONIN EM LIMITED	/
S.2 Relevant legal entity identifier	213800V83W83UL8WR118	/
S.3 Name of the crypto-asset	USDC	/
S.6 Beginning of the period to which the disclosure relates	2025-11-04	/
S.7 End of the period to which the disclosure relates	2026-11-04	/
S.8 Energy consumption	442303.00155	kWh/a

Qualitative information

S.4 Consensus Mechanism

USDC is present on the following networks: Algorand, Aptos Coin, Arbitrum, Arc, Avalanche, Base, Celo, Cronos, Ethereum, Flow, Hedera Hbar, Hyperliquid, Injective, Linea, Monad, Near Protocol, Okt Chain, Optimism, Pharos, Plasma, Plume, Polygon, Ripple, Sei, Solana, Sonic, Starknet, Statemint, Stellar, Sui, Tron, Worldchain, Xdc Network, Zksync.

Algorand uses Pure Proof-of-Stake (PPoS). In each round, verifiable random functions select a block proposer and voting committees in proportion to participating online stake. Committee votes certify the proposed block and determine the next ledger state.

Aptos uses a stake-weighted Byzantine fault-tolerant consensus protocol. A validator leader proposes an ordered block of transactions, validators vote on the proposal and execution result, and a supermajority of voting power is required before the block is committed.

Arbitrum One is an optimistic Layer-2 rollup that settles on Ethereum. A sequencer orders transactions. ArbOS and the state transition function execute them and determine the resulting Layer-2 state. A batch poster publishes compressed transaction data to Ethereum. Validators submit state assertions to Ethereum and may challenge conflicting assertions under the BoLD dispute protocol. An assertion is confirmed after the applicable challenge period if no successful challenge remains.

Arc uses Malachite, an implementation of Tendermint Byzantine fault-tolerant consensus, with a permissioned Proof-of-Authority validator set. Validators exchange pre-votes and pre-commits in consensus rounds, and a block is committed when more than two-thirds of validator voting power agrees.

The Avalanche C-Chain uses Snowman consensus with stake-weighted validators. Validators repeatedly sample subsets of other validators and update their preference until a block reaches the protocol confidence threshold. Accepted blocks form the C-Chain's linear history.

Base is an OP Stack optimistic rollup. A sequencer orders and executes Layer-2 transactions, while transaction data and state commitments are submitted to Ethereum for settlement. Invalid state claims can be challenged through the OP Stack fault-proof process.

Celo is an Ethereum Layer-2 rollup built on the OP Stack. A sequencer orders and executes transactions to form Layer-2 blocks, EigenDA provides data availability, and transaction outputs are submitted to Ethereum for settlement.

Cronos EVM uses a permissioned Proof-of-Authority validator set with CometBFT-style Byzantine fault-tolerant block agreement. Authorized validators propose and sign blocks. CRO stake delegation on Cronos POS does not determine the Cronos EVM validator set.

Ethereum uses proof of stake through Gasper, which combines the LMD-GHOST fork-choice rule with Casper FFG finality. Validators stake ETH, propose blocks in assigned slots and attest to block validity. Weighted attestations determine the canonical chain and justify and finalize checkpoints. Defined consensus faults can result in slashing.

Flow uses proof of stake with HotStuff-based Byzantine-fault-tolerant consensus and separate node roles. Consensus nodes propose and vote on blocks, while collection, execution and verification nodes perform transaction intake, computation and result checking. Quorum certificates and epoch procedures coordinate finalization and validator-set changes.

Hedera uses a stake-weighted hashgraph consensus algorithm with asynchronous Byzantine fault tolerance. Nodes exchange transactions and event histories through gossip about gossip. Each node derives virtual votes from the shared event history to determine consensus order and timestamps. The resulting consensus is final once the protocol threshold is reached.

Hyperliquid is a Layer-1 blockchain using HyperBFT, a stake-weighted Byzantine fault-tolerant consensus protocol inspired by HotStuff. Validators propose and vote on blocks, and the resulting consensus order is shared by HyperCore and HyperEVM. HyperCore and HyperEVM are execution environments of the same chain rather than separate consensus networks.

Injective uses CometBFT proof-of-stake consensus. Validators propose and vote on blocks, while voting power is determined by self-delegated and delegated INJ. A block is committed when the required validator voting power approves it.

Linea is a zero-knowledge rollup that settles state on Ethereum. Its Maru consensus client uses QBFT to order and finalize Layer-2 blocks, while Linea execution clients execute the transactions. Batches are proven with zero-knowledge proofs and reach Ethereum settlement after the proof and associated data are accepted by the Layer-1 contracts.

Monad uses MonadBFT with Proof of Stake. A stake-weighted leader proposes a block in each round, validators evaluate the proposal, and votes representing more than two thirds of stake form quorum certificates that advance the block toward finality. Delegation is supported.

NEAR uses Proof of Stake with sharded block production. Validators are assigned block-production and chunk-validation duties according to staked and delegated NEAR. Validators attest to shard data, and the protocol combines validated chunks into the canonical chain under its block-finality rules.

OKTChain was an EVM-compatible Layer 1 network built with the Cosmos SDK and Tendermint. It used delegated Proof of Stake, under which OKT holders delegated tokens to validators that proposed and voted on blocks. OKX discontinued maintenance and support, and the network's announced operating period ended on 1 January 2026.

OP Mainnet is an optimistic Layer 2 rollup settled on Ethereum. Its sequencer orders transactions and produces Layer 2 blocks, then transaction batches are published to Ethereum. A transaction reaches finality when the Ethereum block containing its batch is finalized, while fault proofs are used to challenge invalid withdrawal claims.

Pharos is an EVM-compatible Layer 1 network using an asynchronous Byzantine fault-tolerant consensus protocol. Validators propose, validate, and commit transactions through the network's adaptive consensus process. Special Processing Networks may use separate validator sets for their assigned execution functions.

Plasma Chain uses PlasmaBFT, a consensus protocol based on Fast HotStuff with pipelined execution. Validators are selected through a simplified Proof-of-Stake mechanism and participate in block production and finalization. Misbehavior does not lead to full slashing of stake but results in reduced rewards.

Plume is an Arbitrum Orbit rollup using the Nitro stack. A sequencer orders and executes transactions, while rollup nodes derive the state and validators can challenge invalid state assertions through the Arbitrum dispute process. The network uses Celestia-based data availability and settles its rollup contracts on Ethereum.

Polygon PoS is an EVM-compatible sidechain with its own Proof-of-Stake validator set. Under the Rio architecture, validators elect a block producer for a span, Bor executes transactions and produces blocks, and Heimdall coordinates validator attestations and checkpoint submission to Ethereum.

The XRP Ledger uses the XRP Ledger Consensus Protocol. Each server selects a Unique Node List of validators whose proposals it evaluates. Validators iteratively agree on transaction ordering and results, and a ledger version is validated when the required threshold of trusted validators supports it.

Sei uses a stake-weighted validator set with Autobahn Byzantine fault-tolerant consensus. Validators maintain individual proposal lanes, exchange certified transaction batches, and vote on ordered block cuts. Quorum certificates record the validator agreement used to finalize ordering before application execution completes.

Solana uses stake-weighted Proof of Stake with Tower BFT. A scheduled leader orders transactions and produces block entries using Proof of History as a cryptographic clock, while validators replay the entries and submit stake-weighted votes. Confirmed votes and lockout rules determine finality.

Sonic utilizes a Proof-of-Stake (PoS) consensus mechanism integrated with a Directed Acyclic Graph (DAG) architecture to enhance scalability and efficiency. Validators are required to stake the network's native $S tokens, with a minimum of 500,000 $S tokens needed to operate a validator node. This substantial staking requirement ensures that validators have a significant investment in the network's integrity.

Starknet is a validity rollup. Sequencers order and execute Layer 2 transactions, and provers generate STARK proofs for batches of state transitions. Ethereum contracts verify the proofs and record the resulting Starknet state commitments, while transaction data required for state reconstruction is published to Ethereum.

Statemint was renamed Polkadot Asset Hub. It is a Polkadot system parachain whose collators assemble candidate blocks and submit them to Polkadot relay-chain validators. Relay-chain validators verify parachain state transitions, and Polkadot consensus provides finality for accepted Asset Hub blocks.

Stellar uses the Stellar Consensus Protocol, a federated Byzantine agreement system. Each validator defines quorum slices representing the sets of validators whose agreement it accepts. Transactions are included when overlapping quorums nominate and confirm the same ledger value through the protocol's ballot process.

Sui uses Delegated Proof of Stake with the Mysticeti Byzantine fault-tolerant consensus protocol. Validator voting power is determined by delegated SUI stake. Validators exchange and certify transaction data through a directed acyclic graph, while Mysticeti orders consensus transactions and commits them after the required stake-weighted support is reached.

TRON uses Delegated Proof of Stake. TRX stakers allocate TRON Power to elect 27 Super Representatives, which produce blocks in a scheduled rotation. A block becomes solidified after at least 19 distinct active Super Representatives have produced a block at that height or above. The active set is recalculated from votes at scheduled maintenance updates.

World Chain does not operate a consensus mechanism or validator set of its own. Transactions are ordered and blocks are produced by a single sequencer, which is not open to third parties. Settlement and finality come from the proof-of-stake consensus of Ethereum, to which the transaction data and state commitments are posted. As an optimistic rollup, World Chain treats state commitments as valid unless they are challenged during a challenge period. At present, only designated parties may submit state commitments and challenge them. If the sequencer does not include a transaction, users can submit it through Ethereum, subject to a delay. Accordingly, the security of World Chain depends on Ethereum for settlement and finality, while transaction ordering depends on the sequencer.

XDC Network uses XDPoS 2.0, a delegated Proof-of-Stake mechanism. Staked masternodes take turns proposing blocks, and validator quorum signatures confirm them under the protocol's Byzantine fault-tolerant finality rules. Full nodes independently verify transactions, blocks and the resulting ledger state.

ZKsync Era is an Ethereum Layer 2 zero-knowledge rollup. A sequencer orders and executes transactions and groups them into batches. The prover generates validity proofs for the batches, and a verifier contract on Ethereum checks the proofs and finalizes the corresponding state transitions.

S.5 Incentive Mechanisms and Applicable Fees

USDC is present on the following networks: Algorand, Aptos Coin, Arbitrum, Arc, Avalanche, Base, Celo, Cronos, Ethereum, Flow, Hedera Hbar, Hyperliquid, Injective, Linea, Monad, Near Protocol, Okt Chain, Optimism, Pharos, Plasma, Plume, Polygon, Ripple, Sei, Solana, Sonic, Starknet, Statemint, Stellar, Sui, Tron, Worldchain, Xdc Network, Zksync.

Eligible online consensus accounts that propose blocks can receive ALGO-denominated payouts comprising a protocol-defined share of transaction fees and, where available, a bonus from the FeeSink. Transactions incur fees in ALGO under protocol parameters, and accounts that do not meet participation requirements may be suspended from reward eligibility.

Validators and their stakers receive APT-denominated staking rewards based on stake and validator performance, with operator commissions applied where configured. Transactions pay execution, I/O

and storage fees in APT. Execution fees are burned, and storage fees may be refunded when the associated state storage is deleted.

Arbitrum One transactions incur fees in ETH. The total fee consists of a Layer-2 execution component and a parent-chain data component reflecting the cost of publishing compressed transaction data to Ethereum. The amount depends on the computational resources used, the size and compressibility of the transaction data, the Layer-2 gas price and the applicable Ethereum data-posting costs. Validators that submit or challenge state assertions under BoLD must provide protocol-defined bonds. Bonds are returned or forfeited according to the applicable protocol rules and the outcome of a dispute. Withdrawals through the canonical bridge become executable after the relevant Layer-2 state has been confirmed and the applicable challenge period has elapsed.

Transactions on the currently available Arc Testnet incur gas fees denominated in USDC. The fee model comprises a protocol base fee and an optional priority fee, and collected fees are paid to validators under the current Testnet configuration.

Primary Network validators and delegators can receive AVAX staking rewards after satisfying protocol participation requirements. The protocol does not ordinarily slash bonded principal. Failure to meet validation requirements can result in loss of reward eligibility. C-Chain transactions incur AVAX gas fees, which are burned rather than paid to validators.

Base has no native protocol token. Transaction fees are paid in ETH and comprise a Layer-2 execution fee and a Layer-1 fee reflecting the cost of publishing transaction data to Ethereum. Both components vary with the applicable network conditions.

Transactions incur gas fees based on gas used and network fee parameters, payable in CELO or supported ERC-20 fee currencies. Separately, eligible community RPC providers and holders who lock CELO and vote for elected provider groups can receive protocol-defined epoch rewards.

Cronos EVM transactions and smart-contract operations incur gas fees paid in CRO. Block production is performed by authorized validators rather than through an open delegation mechanism. CRO holders seeking protocol staking rewards use the separate Cronos POS chain.

Validators receive newly issued ETH for block proposals, attestations and other consensus duties and may receive priority fees and execution-layer value associated with proposed blocks. Each transaction pays gas in ETH. The EIP-1559 base fee is burned and an optional priority fee is paid to the block proposer. Missed duties reduce rewards, while defined misconduct can cause slashing.

Node operators and delegators receive FLOW staking rewards funded by newly issued tokens and transaction fees, subject to role requirements, commission and slashing rules. Transactions pay FLOW-denominated fees based on execution effort and storage or account-related resource use under current protocol parameters.

Users pay HBAR transaction charges comprising applicable node, network and service fees. Fee schedules are expressed in USD-equivalent terms and converted to HBAR at the current exchange rate used by the network. Eligible node operators and accounts staked to participating nodes can receive HBAR rewards under council-defined parameters. Native staking does not require HBAR to be locked.

Validators and delegators can receive HYPE staking rewards under the protocol's staking rules. HyperCore trading activity incurs maker and taker fees according to the applicable fee schedule, with additional rules for selected products and builder fees. HyperEVM transactions separately incur HYPE-denominated gas fees. These charges are distinct from trading funding payments and liquidation outcomes.

Validators and delegators receive staking rewards from protocol issuance and network fees after validator commission. Network transactions require gas fees that are generally paid in INJ. Separately, a share of fees generated by exchange applications enters an auction, and the INJ paid by the winning bidder is burned.

Users pay Linea gas fees exclusively in ETH. After Layer-1 and other protocol costs are deducted, the dual-burn mechanism allocates twenty percent of net fee revenue to burning ETH and uses the remaining eighty percent to burn LINEA. LINEA is used for ecosystem incentives rather than gas payments or validator staking.

MON may be staked or delegated to validators as part of Proof-of-Stake participation. Users pay transaction fees in MON. The fee uses an EIP-1559-compatible base fee and priority fee, and Monad charges the transaction's stated gas limit rather than the gas actually consumed.

Validators and delegators receive protocol staking rewards in NEAR. Users pay gas fees in NEAR for transactions and contract execution. A protocol-defined portion of eligible contract-execution fees may be assigned to the contract account, while the remaining fee is burned. Accounts and contracts must also maintain NEAR balances for occupied storage.

While OKTChain operated, validators and delegators received rewards under its delegated Proof-of-Stake rules, and users paid transaction and smart-contract execution fees in OKT. OKX ended OKT trading and converted eligible exchange-held OKT to OKB as part of the chain's decommissioning. These historical incentives and fees no longer describe an active supported network.

Users pay OP Mainnet transaction fees in ETH. The total fee includes the Layer 2 execution fee, the cost of publishing transaction data to Ethereum, and an operator fee after the relevant network upgrade. Fee components are routed to protocol fee vaults, and OP Mainnet does not provide public validator or delegation rewards for Layer 2 consensus.

PROS is used for transaction fees and staking on Pharos. Validators may receive protocol rewards for participating in base-layer consensus, while native restaking can assign stake and rewards to Special Processing Networks. Slashing or reduced rewards may apply under the rules of the relevant validator role.

Validators stake XPL and receive protocol rewards for signing and finalizing blocks. Their reward share may be reduced for missed or incorrect participation. Users generally pay gas in XPL, while qualifying USDT transfers may be sponsored by the protocol and presented to the user without a transaction fee.

Transactions incur gas fees in PLUME. The total fee reflects execution on Plume and costs associated with data availability and settlement to Ethereum. PLUME can be delegated through Plume's staking program, with validator and delegator rewards determined by the applicable staking rules. The token is also used for governance and separately administered ecosystem incentives.

Validators stake POL and receive protocol rewards and transaction-fee allocations. Delegators may receive a share of a validator's rewards after commission. Users pay POL gas for transfers and smart-contract execution, and the Rio fee rules allocate block-related fees between the elected producer and the validator set.

The XRP Ledger does not pay protocol rewards to validators and does not use mining or staking. Each transaction specifies an XRP fee that is permanently destroyed rather than paid to a validator. The minimum fee can change through validator voting and rises temporarily under load. Separate XRP reserve requirements apply to accounts and ledger objects but are not transaction fees.

Validators and delegators receive SEI staking rewards after validator commission and may be subject to slashing under the network rules. Users pay transaction and smart-contract execution fees in SEI based on gas used and the applicable fee parameters. Governance participation is separate from transaction-validation compensation.

Validators and delegators receive inflation-funded staking rewards after validator commission. Each transaction pays a base fee in SOL and may include a prioritization fee. Half of the base fee is burned and half is paid to the validator, while the prioritization fee is paid to the validator. Accounts may also require a refundable rent-exempt reserve.

Sonic's economic model is designed to incentivize active participation from both validators and developers. Validators earn rewards through a combination of block rewards and transaction fees. The block reward system employs a dynamic Annual Percentage Rate (APR) mechanism.

Users pay fees for Layer 2 computation, data, and settlement-related costs in supported fee tokens, including ETH and STRK. Sequencers collect transaction fees according to the protocol rules. Eligible validators and delegators may receive STRK staking rewards subject to participation requirements and commission arrangements.

Polkadot validators receive DOT staking rewards under Polkadot relay-chain rules. Polkadot Asset Hub collators do not receive inflation-funded era rewards and may receive a portion of transaction fees. Users pay fees in DOT or an eligible supported asset, and some asset-management operations require deposits or reserves.

Stellar does not issue protocol block rewards and validators do not receive transaction fees. Each transaction pays a fee in XLM based on its operations and the submitted fee bid, with surge pricing applying when demand exceeds ledger capacity. Accounts and ledger entries may also require minimum XLM reserves.

Validators and delegators receive SUI staking rewards from protocol subsidies and the network fee model, subject to validator commission and performance. Users pay SUI gas covering computation and storage. Storage charges are paid into the storage fund, and a storage rebate may be returned when the corresponding on-chain data is deleted.

Successful blocks create a production reward for the producing Super Representative and a voter-reward pool shared among the highest-ranked representatives according to votes. Each representative sets a brokerage rate that determines the retained share and the share claimable by voters. Transactions consume Bandwidth, while smart-contract execution also consumes Energy. These resources can be obtained by staking or delegation. If available resources are insufficient, TRX is burned at parameterized rates. TRON has no priority fee and no protocol slashing.

Transaction fees on World Chain are paid in ETH. World Chain does not issue a separate network token and does not operate a staking or validator-reward mechanism. Each transaction fee has two components: an execution fee, made up of a base fee that adjusts with demand for block space and an optional priority fee, and a data fee covering the cost of publishing the transaction data to Ethereum. Unlike on Ethereum, the base fee is not burned. All fees are collected in fee contracts on World Chain and are available to the network operator. Fee parameters are set at protocol level, published by the project and subject to change.

Masternodes receive XDC rewards based on participation in block production and signing. XDC holders may stake or delegate under the network's rules, and eligible participants receive the associated reward allocation. Transactions pay EVM-style gas in XDC, calculated from the gas used and the applicable gas price.

Users pay transaction fees, normally in ETH, covering Layer 2 execution, proof and batch overhead and the cost of publishing state-change data to Ethereum. The network operator charges these fees and pays the related Layer 1 costs. Native account abstraction also permits paymasters to sponsor gas or accept supported ERC-20 tokens from users. ZKsync Era does not publish a protocol validator reward schedule.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

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. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

To determine the energy consumption of a token, the energy consumption of the network(s) algorand, aptos_coin, arbitrum, arc, avalanche, base, celo, cronos, ethereum, flow, hedera_hbar, hyperliquid, injective, linea, monad, near_protocol, okt_chain, optimism, pharos, plasma, plume, polygon, ripple, sei, solana, sonic, starknet, statemint, stellar, sui, tron, worldchain, xdc_network, zksync is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

Sui

SUI | 64RFW3D8P

Quantitative information

Quantitative sustainability indicators for Sui

Field	Value	Unit
S.1 Name	RONIN EM LIMITED	/
S.2 Relevant legal entity identifier	213800V83W83UL8WR118	/
S.3 Name of the crypto-asset	Sui	/
S.6 Beginning of the period to which the disclosure relates	2025-11-04	/
S.7 End of the period to which the disclosure relates	2026-11-04	/
S.8 Energy consumption	365292.00000	kWh/a

Qualitative information

S.4 Consensus Mechanism

Sui uses Delegated Proof of Stake with the Mysticeti Byzantine fault-tolerant consensus protocol. Validator voting power is determined by delegated SUI stake. Validators exchange and certify transaction data through a directed acyclic graph, while Mysticeti orders consensus transactions and commits them after the required stake-weighted support is reached.

S.5 Incentive Mechanisms and Applicable Fees

Validators and delegators receive SUI staking rewards from protocol subsidies and the network fee model, subject to validator commission and performance. Users pay SUI gas covering computation and storage. Storage charges are paid into the storage fund, and a storage rebate may be returned when the corresponding on-chain data is deleted.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

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. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

To determine the energy consumption of a token, the energy consumption of the network(s) sui is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

Hyperliquid

HYPE | HLTPNVXN0

Quantitative information

Quantitative sustainability indicators for Hyperliquid

Field	Value	Unit
S.1 Name	RONIN EM LIMITED	/
S.2 Relevant legal entity identifier	213800V83W83UL8WR118	/
S.3 Name of the crypto-asset	Hyperliquid	/
S.6 Beginning of the period to which the disclosure relates	2025-11-04	/
S.7 End of the period to which the disclosure relates	2026-11-04	/
S.8 Energy consumption	67014.00000	kWh/a

Qualitative information

S.4 Consensus Mechanism

Hyperliquid is a Layer-1 blockchain using HyperBFT, a stake-weighted Byzantine fault-tolerant consensus protocol inspired by HotStuff. Validators propose and vote on blocks, and the resulting consensus order is shared by HyperCore and HyperEVM. HyperCore and HyperEVM are execution environments of the same chain rather than separate consensus networks.

S.5 Incentive Mechanisms and Applicable Fees

Validators and delegators can receive HYPE staking rewards under the protocol's staking rules. HyperCore trading activity incurs maker and taker fees according to the applicable fee schedule, with additional rules for selected products and builder fees. HyperEVM transactions separately incur HYPE-denominated gas fees. These charges are distinct from trading funding payments and liquidation outcomes.

S.9 Energy consumption sources 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. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

ChainLink Token

LINK | 3R3J70FDR

Quantitative information

Quantitative sustainability indicators for ChainLink Token

Field	Value	Unit
S.1 Name	RONIN EM LIMITED	/
S.2 Relevant legal entity identifier	213800V83W83UL8WR118	/
S.3 Name of the crypto-asset	ChainLink Token	/
S.6 Beginning of the period to which the disclosure relates	2025-11-04	/
S.7 End of the period to which the disclosure relates	2026-11-04	/
S.8 Energy consumption	8163.99959	kWh/a

Qualitative information

S.4 Consensus Mechanism

ChainLink Token is present on the following networks: Arbitrum, Avalanche, Binance Smart Chain, Ethereum, Fantom, Gnosis Chain, Optimism, Polygon, Solana.

Arbitrum One is an optimistic Layer-2 rollup that settles on Ethereum. A sequencer orders transactions. ArbOS and the state transition function execute them and determine the resulting Layer-2 state. A batch poster publishes compressed transaction data to Ethereum. Validators submit state assertions to Ethereum and may challenge conflicting assertions under the BoLD dispute protocol. An assertion is confirmed after the applicable challenge period if no successful challenge remains.

The Avalanche C-Chain uses Snowman consensus with stake-weighted validators. Validators repeatedly sample subsets of other validators and update their preference until a block reaches the protocol confidence threshold. Accepted blocks form the C-Chain's linear history.

BNB Smart Chain uses Proof-of-Staked-Authority. Active validators selected according to bonded BNB take turns producing blocks and vote on finality, while BNB holders may delegate stake to validator candidates.

Ethereum uses proof of stake through Gasper, which combines the LMD-GHOST fork-choice rule with Casper FFG finality. Validators stake ETH, propose blocks in assigned slots and attest to block validity. Weighted attestations determine the canonical chain and justify and finalize checkpoints. Defined consensus faults can result in slashing.

Fantom Opera uses the Lachesis asynchronous Byzantine-fault-tolerant proof-of-stake protocol. Validators create and exchange event blocks in a directed acyclic graph, and stake-weighted agreement determines their ordering and finality. Following migration to Sonic, Opera remains live as legacy infrastructure through at least the end of 2026.

Gnosis Chain is an EVM-compatible sidechain using an Ethereum-derived proof-of-stake consensus layer. Validators stake GNO, propose blocks and submit attestations. Stake-weighted votes determine the canonical chain and finalize checkpoints under the network's consensus rules.

OP Mainnet is an optimistic Layer 2 rollup settled on Ethereum. Its sequencer orders transactions and produces Layer 2 blocks, then transaction batches are published to Ethereum. A transaction reaches finality when the Ethereum block containing its batch is finalized, while fault proofs are used to challenge invalid withdrawal claims.

Polygon PoS is an EVM-compatible sidechain with its own Proof-of-Stake validator set. Under the Rio architecture, validators elect a block producer for a span, Bor executes transactions and produces blocks, and Heimdall coordinates validator attestations and checkpoint submission to Ethereum.

Solana uses stake-weighted Proof of Stake with Tower BFT. A scheduled leader orders transactions and produces block entries using Proof of History as a cryptographic clock, while validators replay the entries and submit stake-weighted votes. Confirmed votes and lockout rules determine finality.

S.5 Incentive Mechanisms and Applicable Fees

ChainLink Token is present on the following networks: Arbitrum, Avalanche, Binance Smart Chain, Ethereum, Fantom, Gnosis Chain, Optimism, Polygon, Solana.

Arbitrum One transactions incur fees in ETH. The total fee consists of a Layer-2 execution component and a parent-chain data component reflecting the cost of publishing compressed transaction data to Ethereum. The amount depends on the computational resources used, the size and compressibility of the transaction data, the Layer-2 gas price and the applicable Ethereum data-posting costs. Validators that submit or challenge state assertions under BoLD must provide protocol-defined bonds. Bonds are returned or forfeited according to the applicable protocol rules and the outcome of a dispute. Withdrawals through the canonical bridge become executable after the relevant Layer-2 state has been confirmed and the applicable challenge period has elapsed.

Primary Network validators and delegators can receive AVAX staking rewards after satisfying protocol participation requirements. The protocol does not ordinarily slash bonded principal. Failure to meet validation requirements can result in loss of reward eligibility. C-Chain transactions incur AVAX gas fees, which are burned rather than paid to validators.

Validators and delegators can receive BNB rewards derived from transaction fees, subject to validator commission and reward-distribution rules. Transfers and smart-contract execution incur gas fees in BNB. Protocol penalties may include loss of rewards, jailing or slashing of validator self-stake for specified violations.

Validators receive newly issued ETH for block proposals, attestations and other consensus duties and may receive priority fees and execution-layer value associated with proposed blocks. Each transaction pays gas in ETH. The EIP-1559 base fee is burned and an optional priority fee is paid to the block proposer. Missed duties reduce rewards, while defined misconduct can cause slashing.

Fantom Opera transactions incur FTM-denominated gas fees. Opera staking emissions were reduced to zero when validator rewards migrated to Sonic, although the legacy network remains operational.

Current transaction fees are allocated among validators, the Ecosystem Vault, Gas Monetization participants and protocol burning under the network's fee rules.

Validators receive protocol-defined consensus rewards in GNO and may receive xDAI transaction fees when proposing blocks. Participants using staking pools receive rewards after applicable operator charges. Users pay xDAI-denominated gas fees for transfers and smart-contract execution.

Users pay OP Mainnet transaction fees in ETH. The total fee includes the Layer 2 execution fee, the cost of publishing transaction data to Ethereum, and an operator fee after the relevant network upgrade. Fee components are routed to protocol fee vaults, and OP Mainnet does not provide public validator or delegation rewards for Layer 2 consensus.

Validators stake POL and receive protocol rewards and transaction-fee allocations. Delegators may receive a share of a validator's rewards after commission. Users pay POL gas for transfers and smart-contract execution, and the Rio fee rules allocate block-related fees between the elected producer and the validator set.

Validators and delegators receive inflation-funded staking rewards after validator commission. Each transaction pays a base fee in SOL and may include a prioritization fee. Half of the base fee is burned and half is paid to the validator, while the prioritization fee is paid to the validator. Accounts may also require a refundable rent-exempt reserve.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) arbitrum, avalanche, binance_smart_chain, ethereum, fantom, gnosis_chain, optimism, polygon, solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

Uniswap

UNI | XMB84LZBZ

Quantitative information

Quantitative sustainability indicators for Uniswap

Field	Value	Unit
S.1 Name	RONIN EM LIMITED	/
S.2 Relevant legal entity identifier	213800V83W83UL8WR118	/
S.3 Name of the crypto-asset	Uniswap	/
S.6 Beginning of the period to which the disclosure relates	2025-11-04	/
S.7 End of the period to which the disclosure relates	2026-11-04	/
S.8 Energy consumption	8021.56032	kWh/a

Qualitative information

S.4 Consensus Mechanism

Uniswap is present on the following networks: Arbitrum, Binance Smart Chain, Ethereum, Polygon.

Arbitrum One is an optimistic Layer-2 rollup that settles on Ethereum. A sequencer orders transactions. ArbOS and the state transition function execute them and determine the resulting Layer-2 state. A batch poster publishes compressed transaction data to Ethereum. Validators submit state assertions to Ethereum and may challenge conflicting assertions under the BoLD dispute protocol. An assertion is confirmed after the applicable challenge period if no successful challenge remains.

BNB Smart Chain uses Proof-of-Staked-Authority. Active validators selected according to bonded BNB take turns producing blocks and vote on finality, while BNB holders may delegate stake to validator candidates.

Ethereum uses proof of stake through Gasper, which combines the LMD-GHOST fork-choice rule with Casper FFG finality. Validators stake ETH, propose blocks in assigned slots and attest to block validity. Weighted attestations determine the canonical chain and justify and finalize checkpoints. Defined consensus faults can result in slashing.

Polygon PoS is an EVM-compatible sidechain with its own Proof-of-Stake validator set. Under the Rio architecture, validators elect a block producer for a span, Bor executes transactions and produces blocks, and Heimdall coordinates validator attestations and checkpoint submission to Ethereum.

S.5 Incentive Mechanisms and Applicable Fees

Uniswap is present on the following networks: Arbitrum, Binance Smart Chain, Ethereum, Polygon.

Arbitrum One transactions incur fees in ETH. The total fee consists of a Layer-2 execution component and a parent-chain data component reflecting the cost of publishing compressed transaction data to Ethereum. The amount depends on the computational resources used, the size and compressibility of the transaction data, the Layer-2 gas price and the applicable Ethereum data-posting costs. Validators that submit or challenge state assertions under BoLD must provide protocol-defined bonds. Bonds are returned or forfeited according to the applicable protocol rules and the outcome of a dispute. Withdrawals through the canonical bridge become executable after the relevant Layer-2 state has been confirmed and the applicable challenge period has elapsed.

Validators and delegators can receive BNB rewards derived from transaction fees, subject to validator commission and reward-distribution rules. Transfers and smart-contract execution incur gas fees in BNB. Protocol penalties may include loss of rewards, jailing or slashing of validator self-stake for specified violations.

Validators receive newly issued ETH for block proposals, attestations and other consensus duties and may receive priority fees and execution-layer value associated with proposed blocks. Each transaction pays gas in ETH. The EIP-1559 base fee is burned and an optional priority fee is paid to the block proposer. Missed duties reduce rewards, while defined misconduct can cause slashing.

Validators stake POL and receive protocol rewards and transaction-fee allocations. Delegators may receive a share of a validator's rewards after commission. Users pay POL gas for transfers and smart-contract execution, and the Rio fee rules allocate block-related fees between the elected producer and the validator set.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) arbitrum, binance_smart_chain, ethereum, polygon is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

Aave Token

AAVE | H618RN577

Quantitative information

Quantitative sustainability indicators for Aave Token

Field	Value	Unit
S.1 Name	RONIN EM LIMITED	/
S.2 Relevant legal entity identifier	213800V83W83UL8WR118	/
S.3 Name of the crypto-asset	Aave Token	/
S.6 Beginning of the period to which the disclosure relates	2025-11-04	/
S.7 End of the period to which the disclosure relates	2026-11-04	/
S.8 Energy consumption	5465.61725	kWh/a

Qualitative information

S.4 Consensus Mechanism

Aave Token is present on the following networks: Avalanche, Binance Smart Chain, Ethereum, Gnosis Chain, Huobi, Near Protocol, Polygon, Solana.

The Avalanche C-Chain uses Snowman consensus with stake-weighted validators. Validators repeatedly sample subsets of other validators and update their preference until a block reaches the protocol confidence threshold. Accepted blocks form the C-Chain's linear history.

BNB Smart Chain uses Proof-of-Staked-Authority. Active validators selected according to bonded BNB take turns producing blocks and vote on finality, while BNB holders may delegate stake to validator candidates.

Ethereum uses proof of stake through Gasper, which combines the LMD-GHOST fork-choice rule with Casper FFG finality. Validators stake ETH, propose blocks in assigned slots and attest to block validity. Weighted attestations determine the canonical chain and justify and finalize checkpoints. Defined consensus faults can result in slashing.

Gnosis Chain is an EVM-compatible sidechain using an Ethereum-derived proof-of-stake consensus layer. Validators stake GNO, propose blocks and submit attestations. Stake-weighted votes determine the canonical chain and finalize checkpoints under the network's consensus rules.

Huobi ECO Chain used a Hybrid Proof of Stake mechanism with a limited set of elected consensus nodes. These nodes produced blocks and validated transactions according to stake-based election and Byzantine fault-tolerant rules. HECO ceased network operations in January 2025 and is therefore described as a historical network.

NEAR uses Proof of Stake with sharded block production. Validators are assigned block-production and chunk-validation duties according to staked and delegated NEAR. Validators attest to shard data, and the protocol combines validated chunks into the canonical chain under its block-finality rules.

Polygon PoS is an EVM-compatible sidechain with its own Proof-of-Stake validator set. Under the Rio architecture, validators elect a block producer for a span, Bor executes transactions and produces blocks, and Heimdall coordinates validator attestations and checkpoint submission to Ethereum.

Solana uses stake-weighted Proof of Stake with Tower BFT. A scheduled leader orders transactions and produces block entries using Proof of History as a cryptographic clock, while validators replay the entries and submit stake-weighted votes. Confirmed votes and lockout rules determine finality.

S.5 Incentive Mechanisms and Applicable Fees

Aave Token is present on the following networks: Avalanche, Binance Smart Chain, Ethereum, Gnosis Chain, Huobi, Near Protocol, Polygon, Solana.

Primary Network validators and delegators can receive AVAX staking rewards after satisfying protocol participation requirements. The protocol does not ordinarily slash bonded principal. Failure to meet validation requirements can result in loss of reward eligibility. C-Chain transactions incur AVAX gas fees, which are burned rather than paid to validators.

Validators and delegators can receive BNB rewards derived from transaction fees, subject to validator commission and reward-distribution rules. Transfers and smart-contract execution incur gas fees in BNB. Protocol penalties may include loss of rewards, jailing or slashing of validator self-stake for specified violations.

Validators receive newly issued ETH for block proposals, attestations and other consensus duties and may receive priority fees and execution-layer value associated with proposed blocks. Each transaction pays gas in ETH. The EIP-1559 base fee is burned and an optional priority fee is paid to the block proposer. Missed duties reduce rewards, while defined misconduct can cause slashing.

Validators receive protocol-defined consensus rewards in GNO and may receive xDAI transaction fees when proposing blocks. Participants using staking pools receive rewards after applicable operator charges. Users pay xDAI-denominated gas fees for transfers and smart-contract execution.

While HECO was active, users paid HT-denominated gas fees for transfers and smart-contract execution. Consensus nodes received transaction fees and protocol-defined rewards under the former Hybrid Proof of Stake model. Staking and delegation were used in the election and reward process. These network-level fees and incentives no longer apply following HECO's retirement.

Validators and delegators receive protocol staking rewards in NEAR. Users pay gas fees in NEAR for transactions and contract execution. A protocol-defined portion of eligible contract-execution fees may be assigned to the contract account, while the remaining fee is burned. Accounts and contracts must also maintain NEAR balances for occupied storage.

Validators stake POL and receive protocol rewards and transaction-fee allocations. Delegators may receive a share of a validator's rewards after commission. Users pay POL gas for transfers and smart-contract execution, and the Rio fee rules allocate block-related fees between the elected producer and the validator set.

Validators and delegators receive inflation-funded staking rewards after validator commission. Each transaction pays a base fee in SOL and may include a prioritization fee. Half of the base fee is burned

and half is paid to the validator, while the prioritization fee is paid to the validator. Accounts may also require a refundable rent-exempt reserve.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) avalanche, binance_smart_chain, ethereum, gnosis_chain, huobi, near_protocol, polygon, solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

EURC

EURC | 13XTMPZT3

Quantitative information

Quantitative sustainability indicators for EURC

Field	Value	Unit
S.1 Name	RONIN EM LIMITED	/
S.2 Relevant legal entity identifier	213800V83W83UL8WR118	/
S.3 Name of the crypto-asset	EURC	/
S.6 Beginning of the period to which the disclosure relates	2025-11-04	/
S.7 End of the period to which the disclosure relates	2026-11-04	/
S.8 Energy consumption	2903.66174	kWh/a

Qualitative information

S.4 Consensus Mechanism

EURC is present on the following networks: Arc, Avalanche, Base, Cronos, Ethereum, Plasma, Solana, Stellar, Worldchain.

Arc uses Malachite, an implementation of Tendermint Byzantine fault-tolerant consensus, with a permissioned Proof-of-Authority validator set. Validators exchange pre-votes and pre-commits in consensus rounds, and a block is committed when more than two-thirds of validator voting power agrees.

The Avalanche C-Chain uses Snowman consensus with stake-weighted validators. Validators repeatedly sample subsets of other validators and update their preference until a block reaches the protocol confidence threshold. Accepted blocks form the C-Chain's linear history.

Base is an OP Stack optimistic rollup. A sequencer orders and executes Layer-2 transactions, while transaction data and state commitments are submitted to Ethereum for settlement. Invalid state claims can be challenged through the OP Stack fault-proof process.

Cronos EVM uses a permissioned Proof-of-Authority validator set with CometBFT-style Byzantine fault-tolerant block agreement. Authorized validators propose and sign blocks. CRO stake delegation on Cronos POS does not determine the Cronos EVM validator set.

Ethereum uses proof of stake through Gasper, which combines the LMD-GHOST fork-choice rule with Casper FFG finality. Validators stake ETH, propose blocks in assigned slots and attest to block validity. Weighted attestations determine the canonical chain and justify and finalize checkpoints. Defined consensus faults can result in slashing.

Plasma Chain uses PlasmaBFT, a consensus protocol based on Fast HotStuff with pipelined execution. Validators are selected through a simplified Proof-of-Stake mechanism and participate in block production and finalization. Misbehavior does not lead to full slashing of stake but results in reduced rewards.

Solana uses stake-weighted Proof of Stake with Tower BFT. A scheduled leader orders transactions and produces block entries using Proof of History as a cryptographic clock, while validators replay the entries and submit stake-weighted votes. Confirmed votes and lockout rules determine finality.

Stellar uses the Stellar Consensus Protocol, a federated Byzantine agreement system. Each validator defines quorum slices representing the sets of validators whose agreement it accepts. Transactions are included when overlapping quorums nominate and confirm the same ledger value through the protocol's ballot process.

World Chain does not operate a consensus mechanism or validator set of its own. Transactions are ordered and blocks are produced by a single sequencer, which is not open to third parties. Settlement and finality come from the proof-of-stake consensus of Ethereum, to which the transaction data and state commitments are posted. As an optimistic rollup, World Chain treats state commitments as valid unless they are challenged during a challenge period. At present, only designated parties may submit state commitments and challenge them. If the sequencer does not include a transaction, users can submit it through Ethereum, subject to a delay. Accordingly, the security of World Chain depends on Ethereum for settlement and finality, while transaction ordering depends on the sequencer.

S.5 Incentive Mechanisms and Applicable Fees

EURC is present on the following networks: Arc, Avalanche, Base, Cronos, Ethereum, Plasma, Solana, Stellar, Worldchain.

Transactions on the currently available Arc Testnet incur gas fees denominated in USDC. The fee model comprises a protocol base fee and an optional priority fee, and collected fees are paid to validators under the current Testnet configuration.

Primary Network validators and delegators can receive AVAX staking rewards after satisfying protocol participation requirements. The protocol does not ordinarily slash bonded principal. Failure to meet validation requirements can result in loss of reward eligibility. C-Chain transactions incur AVAX gas fees, which are burned rather than paid to validators.

Base has no native protocol token. Transaction fees are paid in ETH and comprise a Layer-2 execution fee and a Layer-1 fee reflecting the cost of publishing transaction data to Ethereum. Both components vary with the applicable network conditions.

Cronos EVM transactions and smart-contract operations incur gas fees paid in CRO. Block production is performed by authorized validators rather than through an open delegation mechanism. CRO holders seeking protocol staking rewards use the separate Cronos POS chain.

Validators receive newly issued ETH for block proposals, attestations and other consensus duties and may receive priority fees and execution-layer value associated with proposed blocks. Each transaction pays gas in ETH. The EIP-1559 base fee is burned and an optional priority fee is paid to the block proposer. Missed duties reduce rewards, while defined misconduct can cause slashing.

Validators stake XPL and receive protocol rewards for signing and finalizing blocks. Their reward share may be reduced for missed or incorrect participation. Users generally pay gas in XPL, while

qualifying USDT transfers may be sponsored by the protocol and presented to the user without a transaction fee.

Validators and delegators receive inflation-funded staking rewards after validator commission. Each transaction pays a base fee in SOL and may include a prioritization fee. Half of the base fee is burned and half is paid to the validator, while the prioritization fee is paid to the validator. Accounts may also require a refundable rent-exempt reserve.

Stellar does not issue protocol block rewards and validators do not receive transaction fees. Each transaction pays a fee in XLM based on its operations and the submitted fee bid, with surge pricing applying when demand exceeds ledger capacity. Accounts and ledger entries may also require minimum XLM reserves.

Transaction fees on World Chain are paid in ETH. World Chain does not issue a separate network token and does not operate a staking or validator-reward mechanism. Each transaction fee has two components: an execution fee, made up of a base fee that adjusts with demand for block space and an optional priority fee, and a data fee covering the cost of publishing the transaction data to Ethereum. Unlike on Ethereum, the base fee is not burned. All fees are collected in fee contracts on World Chain and are available to the network operator. Fee parameters are set at protocol level, published by the project and subject to change.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) arc, avalanche, base, cronos, ethereum, plasma, solana, stellar, worldchain is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

Arbitrum

ARB | 44TP35HF9

Quantitative information

Quantitative sustainability indicators for Arbitrum

Field	Value	Unit
S.1 Name	RONIN EM LIMITED	/
S.2 Relevant legal entity identifier	213800V83W83UL8WR118	/
S.3 Name of the crypto-asset	Arbitrum	/
S.6 Beginning of the period to which the disclosure relates	2025-11-04	/
S.7 End of the period to which the disclosure relates	2026-11-04	/
S.8 Energy consumption	1164.82865	kWh/a

Qualitative information

S.4 Consensus Mechanism

Arbitrum is present on the following networks: Arbitrum, Ethereum.

Arbitrum One is an optimistic Layer-2 rollup that settles on Ethereum. A sequencer orders transactions. ArbOS and the state transition function execute them and determine the resulting Layer-2 state. A batch poster publishes compressed transaction data to Ethereum. Validators submit state assertions to Ethereum and may challenge conflicting assertions under the BoLD dispute protocol. An assertion is confirmed after the applicable challenge period if no successful challenge remains.

Ethereum uses proof of stake through Gasper, which combines the LMD-GHOST fork-choice rule with Casper FFG finality. Validators stake ETH, propose blocks in assigned slots and attest to block validity. Weighted attestations determine the canonical chain and justify and finalize checkpoints. Defined consensus faults can result in slashing.

S.5 Incentive Mechanisms and Applicable Fees

Arbitrum is present on the following networks: Arbitrum, Ethereum.

Arbitrum One transactions incur fees in ETH. The total fee consists of a Layer-2 execution component and a parent-chain data component reflecting the cost of publishing compressed transaction data to Ethereum. The amount depends on the computational resources used, the size and compressibility of the transaction data, the Layer-2 gas price and the applicable Ethereum data-posting costs. Validators that submit or challenge state assertions under BoLD must provide

protocol-defined bonds. Bonds are returned or forfeited according to the applicable protocol rules and the outcome of a dispute. Withdrawals through the canonical bridge become executable after the relevant Layer-2 state has been confirmed and the applicable challenge period has elapsed.

Validators receive newly issued ETH for block proposals, attestations and other consensus duties and may receive priority fees and execution-layer value associated with proposed blocks. Each transaction pays gas in ETH. The EIP-1559 base fee is burned and an optional priority fee is paid to the block proposer. Missed duties reduce rewards, while defined misconduct can cause slashing.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) arbitrum, ethereum is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

Optimism

OP | 9NRMM2RC4

Quantitative information

Quantitative sustainability indicators for Optimism

Field	Value	Unit
S.1 Name	RONIN EM LIMITED	/
S.2 Relevant legal entity identifier	213800V83W83UL8WR118	/
S.3 Name of the crypto-asset	Optimism	/
S.6 Beginning of the period to which the disclosure relates	2025-11-04	/
S.7 End of the period to which the disclosure relates	2026-11-04	/
S.8 Energy consumption	510.11003	kWh/a

Qualitative information

S.4 Consensus Mechanism

OP Mainnet is an optimistic Layer 2 rollup settled on Ethereum. Its sequencer orders transactions and produces Layer 2 blocks, then transaction batches are published to Ethereum. A transaction reaches finality when the Ethereum block containing its batch is finalized, while fault proofs are used to challenge invalid withdrawal claims.

S.5 Incentive Mechanisms and Applicable Fees

Users pay OP Mainnet transaction fees in ETH. The total fee includes the Layer 2 execution fee, the cost of publishing transaction data to Ethereum, and an operator fee after the relevant network upgrade. Fee components are routed to protocol fee vaults, and OP Mainnet does not provide public validator or delegation rewards for Layer 2 consensus.

S.9 Energy consumption sources and methodologies

The energy consumption of this asset is aggregated across multiple components:

To determine the energy consumption of a token, the energy consumption of the network(s) optimism is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of

participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

This report was provided by:

Crypto Risk Metrics

Our services

ESG data for crypto-assets

Provision of ESG data for crypto-assets in compliance with MiCA requirements. The data is based on ISO-certified measurements, is legally robust, can be easily integrated, and is trusted by leading regulated market participants operating in different regulatory environments.

White papers for crypto-assets

Crypto Risk Metrics supports CASPs in drafting and maintaining MiCA-compliant white papers, including ESG disclosures, or assumes responsibility for the entire process through its "White Glove Service", with transfer of liability. If the issuer of the crypto-asset does not provide a white paper, the trading platform may prepare and submit it to the competent authority.

Risk management

Crypto Risk Metrics provides a MaRisk- and BAIT-compliant SaaS solution that helps financial institutions manage risks in direct and indirect crypto-asset investments by reference to BSI standards and other recognised standards. Daily reports and a complete audit trail ensure transparent, audit-ready documentation of crypto-asset risks.

Compliant price data

Crypto Risk Metrics delivers KARBV-compliant price data for native crypto-assets using a valuation model tailored to non-organised markets, such as Bitcoin and Ethereum. This ensures accurate asset valuation in line with Sections 27 and 28 of the German Investment Accounting and Valuation Ordinance (KARBV).

Market conformity check

The service ensures compliance with Circular 05/2023 (BA) through automated verification of the market conformity of crypto trades and by flagging potentially non-conforming transactions. Customers receive daily trade reports securely via SFTP or in CSV format, simplifying regulatory risk management.

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