Sustainability indicators for crypto-assets

Disclosures pursuant to Article 66(5) MiCA

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2026-10-16

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Preamble

About the Crypto-Asset Service Provider (CASP)

Name of the CASP: Volksbank in Ostwestfalen eG
Street and number: Kesselbrink 1
City: Bielefeld
Country: Germany
LEI: 529900PUK9IU39VCWK54

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	181,490,328,638.00
2	Litecoin	D74JZ1VRD	826,244,394.80
3	Ethereum Eth	D5RG2FHH0	2,197,008.00
4	Cardano ADA	76QS7QCXB	773,946.00

Sustainability indicators



Bitcoin

BTC | V15WLZJMF

Quantitative information

Quantitative sustainability indicators for Bitcoin

Field	Value	Unit
S.1 Name	Volksbank in Ostwestfalen eG	/
S.2 Relevant legal entity identifier	529900PUK9IU39VCWK54	/
S.3 Name of the crypto-asset	Bitcoin	/
S.6 Beginning of the period to which the disclosure relates	2025-10-16	/
S.7 End of the period to which the disclosure relates	2026-10-16	/
S.8 Energy consumption	181490328637.99902	kWh/a
S.10 Renewable energy consumption	34.4781471084	%
S.11 Energy intensity	4.47468	kWh
S.12 Scope 1 DLT GHG emissions – Controlled	0.00000	tCO2e
S.13 Scope 2 DLT GHG emissions – Purchased	74773300.56851	tCO2e
S.14 GHG intensity	1.84355	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.

Litecoin

LTC | D74JZ1VRD

Quantitative information

Quantitative sustainability indicators for Litecoin

Field	Value	Unit
S.1 Name	Volksbank in Ostwestfalen eG	/
S.2 Relevant legal entity identifier	529900PUK9IU39VCWK54	/
S.3 Name of the crypto-asset	Litecoin	/
S.6 Beginning of the period to which the disclosure relates	2025-10-16	/
S.7 End of the period to which the disclosure relates	2026-10-16	/
S.8 Energy consumption	826244394.79936	kWh/a
S.10 Renewable energy consumption	34.4781471084	%
S.11 Energy intensity	0.02922	kWh
S.12 Scope 1 DLT GHG emissions – Controlled	0.00000	tCO2e
S.13 Scope 2 DLT GHG emissions – Purchased	340409.43635	tCO2e
S.14 GHG intensity	0.01204	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.

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Ethereum Eth

ETH | D5RG2FHH0

Quantitative information

Quantitative sustainability indicators for Ethereum Eth

Field	Value	Unit
S.1 Name	Volksbank in Ostwestfalen eG	/
S.2 Relevant legal entity identifier	529900PUK9IU39VCWK54	/
S.3 Name of the crypto-asset	Ethereum Eth	/
S.6 Beginning of the period to which the disclosure relates	2025-10-16	/
S.7 End of the period to which the disclosure relates	2026-10-16	/
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.

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Cardano ADA

ADA | 76QS7QCXB

Quantitative information

Quantitative sustainability indicators for Cardano ADA

Field	Value	Unit
S.1 Name	Volksbank in Ostwestfalen eG	/
S.2 Relevant legal entity identifier	529900PUK9IU39VCWK54	/
S.3 Name of the crypto-asset	Cardano ADA	/
S.6 Beginning of the period to which the disclosure relates	2025-10-16	/
S.7 End of the period to which the disclosure relates	2026-10-16	/
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

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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.

Contact

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