Crypto2Cash

Environmental-related impacts of the crypto assets offered

2025

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In compliance with Article 66(5) of Regulation (EU) 2023/1114 (MiCA), Crypto2Cash discloses herewith the principal adverse impacts on the climate and other environment-related adverse impacts of the consensus mechanism used to issue each of the following crypto asset networks[1]:

[1] Some networks support various crypto assets/stablecoins, yet the environmental impact depends on the network rather than on the asset itself.

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Bitcoin (BTC) network

Sustainability analytics: The network is characterized by very low energy efficiency, very high carbon footprint (equivalent to the carbon footprint of 1,534,838 VISA transactions[2]). The asset is classified as “Brown” by Cryptowisser[3].

- Consensus mechanism: Proof of Work (PoW)
- Mining global energy supply mix: 45% coal, 21% Natural gas, Hydro 16%, Nuclear 9%, Wind 5%, Solar 2%, Oil 1%[4]
- Approximate energy consumption per transaction: 692.51 kgCO2[5]
- Energy intensity in kWh (decimal) per transaction: 405.67771[6]
- Approximate carbon footprint per transaction (kg CO2e/transaction): 1241.59 kWh[7]
- Approximate carbon emissions annually: 65.4 Mt CO2[8]
- Annual electric power consumption: 2.55 GW[9]
- Fresh water consumption: 2,772 GL[10]

[2] Digiconomist, Bitcoin Energy Consumption Index: https://digiconomist.net/bitcoin-energy-consumption
[3] Cryptowisser: https://www.cryptowisser.com/crypto-carbon-footprint/
[4] The Environmental Footprint of Bitcoin Mining Across the Globe: Call for Urgent Action : https://agupubs.onlinelibrary.wiley.com/doi/10.1029/2023EF003871
[5] Digiconomist, Bitcoin Energy Consumption Index: https://digiconomist.net/bitcoin-energy-consumption
[6] MiCA Crypto Alliance: https://www.micacryptoalliance.com/methodologies
[7] Ibid.
[8] OECD, p. 15: https://www.oecd.org/content/dam/oecd/en/publications/reports/2022/12/environmental-impact-of-digital-assets_1fc184ca/8d834684-en.pdf
[9] OECD, p. 14: https://www.oecd.org/content/dam/oecd/en/publications/reports/2022/12/environmental-impact-of-digital-assets_1fc184ca/8d834684-en.pdf
[10] Digiconomist: https://digiconomist.net/bitcoin-energy-consumption

Bitcoin (BCH) Cash

Sustainability analytics: Low energy efficiency, high carbon footprint. The asset is classified as “Beige[11]” by Cryptowisser.

- Consensus mechanism: SHA256-Based Proof-of-Work
- Mining global energy supply mix: 45% coal, 21% Natural gas, Hydro 16%, Nuclear 9%, Wind 5%, Solar 2%, Oil 1%[12]
- Approximate energy consumption per transaction: ≥ 0.475 kg CO2e / < 47.5 kg CO2e[13]
- Energy intensity in kWh (decimal) per transaction: 34.75142[14]
- Approximate carbon footprint per transaction (kg CO2e/transaction): ≥ 0.475 kg CO2e / <47,5 kg CO2e[15]
- Approximate carbon emissions annually: 65.4 Mt CO2[16]
- Annual electric power: 2.55 GW[17]
- Fresh water consumption: 2,772 GL[18]

[11] Cryptowisser: https://www.cryptowisser.com/crypto-carbon-footprint/
[12] The Environmental Footprint of Bitcoin Mining Across the Globe: Call for Urgent Action : https://agupubs.onlinelibrary.wiley.com/doi/10.1029/2023EF003871
[13] Ibid.
[14] MiCA Crypto Alliance: https://www.micacryptoalliance.com/methodologies
[15] Ibid.
[16] OECD, p. 15: https://www.oecd.org/content/dam/oecd/en/publications/reports/2022/12/environmental-impact-of-digital-assets_1fc184ca/8d834684-en.pdf
[17] OECD, p. 14: https://www.oecd.org/content/dam/oecd/en/publications/reports/2022/12/environmental-impact-of-digital-assets_1fc184ca/8d834684-en.pdf
[18] Digiconomist: https://digiconomist.net/bitcoin-energy-consumption

Ethereum (ETH) network (ERC-20 tokens)

Sustainability analytics: High energy efficiency, low carbon footprint (comparable to the energy used by a household appliance such as a TV for about 20 minutes[19]). The asset is classified as "Light Green[20]" by Cryptowisser.

- Consensus mechanism: Proof of Stake (PoS)
- Assets supported on the network: Quant, USDC
- Approximate energy consumption per transaction: 35 Wh (0.035 kWh)[21]
- Energy intensity in kWh (decimal) per transaction: 0.01046[22]
- Approximate carbon footprint per transaction (kg CO2e/transaction): 0.02 kg CO_2e[23] (depending on energy source)

Cardano (ADA) network

Sustainability analytics: High energy efficiency, low carbon footprint (similar as, or more, energy efficient than an email with a large attachment[24]). The asset is classified as "Light Green[25]" by Cryptowisser.

- Consensus mechanism: Proof of Stake (Ouroboros Protocol)
- Approximate energy consumption per transaction: 0.192 W[26]
- Energy intensity in kWh (decimal) per transaction: 0.04111[27]
- Approximate carbon footprint: Annualized carbon footprint of 250.73 tCO_2e, with a carbon intensity of 356 gCO_2 per kWh[28]

[19] Ethereum Foundation's blog: https://blog.ethereum.org/2021/05/18/country-power-no-more
[20] Cryptowisser: https://www.cryptowisser.com/crypto-carbon-footprint/
[21] Ethereum Foundation's blog: https://blog.ethereum.org/2021/05/18/country-power-no-more
[22] MiCA Crypto Alliance: https://www.micacryptoalliance.com/methodologies
[23] Ibid.
[24] Cryptowisser: https://www.cryptowisser.com/crypto-carbon-footprint/
[25] Cryptowisser: https://www.cryptowisser.com/crypto-carbon-footprint/
[26] Crypto Carbon Ratings Institute (CCRI), Cardano Sustainability Indicators of the Cardano Network, p. 2: https://carbon-ratings.com/network-assessment-cardano-2024
[27] MiCA Crypto Alliance: https://www.micacryptoalliance.com/methodologies
[28] Ibid.

Polkadot (DOT) network

Sustainability analytics: High energy efficiency, low carbon footprint (similar as, or more, energy efficient than an email with a large attachment[29]). The asset is classified as "Light Green" by Cryptowisser.

- Consensus mechanism: Nominated Proof of Stake (NPoS).
- Approximate energy consumption per transaction: Negligible[30]. Ca. 94,264.35035 kWh (decimal) per calendar year[31].
- Energy intensity in kWh (decimal) per transaction: 0.00673[32].
- Approximate carbon footprint per transaction (kg CO2e/transaction): Negligible[33].

Ripple (XRP)

Sustainability analytics: Very high energy efficiency, very low carbon footprint (similar as to a Google Search and a regular email without attachment[34]). The asset is classified as "Medium Green[35]" by Cryptowisser.

- Consensus mechanism: XRP Ledger (Federated consensus protocol).
- Energy consumption per transaction: 0.0060 kWh[36].
- Energy intensity in kWh (decimal) per transaction: 0.00002[37]
- Carbon Footprint per Transaction (kg CO2e/transaction): While no specific figures are provided, the XRPL's design emphasizes sustainability, contributing to its low carbon footprint[38].

[29] Cryptowisser: https://www.cryptowisser.com/crypto-carbon-footprint/
[30] Polkadot (DOT): https://www.adan.eu/en/publication/blockchain-protocols-and-their-energy-footprint/
[31] MiCA Crypto Alliance: https://www.micacryptoalliance.com/methodologies
[32] MiCA Crypto Alliance: https://www.micacryptoalliance.com/methodologies
[33] Ibid.
[34] Cryptowisser: https://www.cryptowisser.com/crypto-carbon-footprint/
[35] Cryptowisser: https://www.cryptowisser.com/crypto-carbon-footprint/
[36] How environmentally friendly is XRP? https://www.greencryptoresearch.com/post/ripple_xrp
[37] MiCA Crypto Alliance: https://www.micacryptoalliance.com/methodologies
[38] Ripple, A Greener Future for Crypto and Blockchain: https://ripple.com/insights/a-greener-future-for-crypto-and-blockchain/

Future assets

In the future, Crypto2Cash may expand its platform to include additional crypto-assets. Before any new asset is introduced, a thorough assessment of its environmental impact will be conducted by relevant stakeholders. Given the rapid pace of innovation in the industry, most of these assets are expected to have minimal to negligible environmental effects. However, to ensure transparency and regulatory alignment, all newly listed assets will be duly included in a Crypto2Cash report, providing clients with comprehensive and relevant sustainability information.