

Mandatory and Supplemental information on principal adverse impacts on the climate and other environment-related adverse impacts of the consensus mechanisms used by crypto assets

In accordance with Article 66(6) of MiCA and the ESMA Draft Regulatory Technical Standards (2024)

Methodology

Gemini Intergalactic EU, Ltd. has developed this methodology to support the disclosure of environmental indicators under Article 66(6) of Regulation (EU) 2023/1114 on markets in crypto assets (MiCA). This disclosure framework is aligned with the requirements set out in the final draft Regulatory Technical Standards (RTS) issued by the European Securities and Markets Authority (ESMA), including Annex IV and its relevant tables.

The methodology applies to each crypto asset listed in Gemini’s disclosure tables. The values disclosed are based on the reporting period from 25 July 2025 to 25 July 2026 and reflect actual or estimated impacts during that timeframe.

Where official and validated environmental data was available from blockchain protocol foundations or third-party research, these sources were used directly. For example, Bitcoin and Ethereum’s energy consumption data is directly derived from the Cambridge Bitcoin Electricity Consumption Index and the Cambridge Blockchain Network Sustainability Index respectively. Litecoin, Solana, XRP and ATOM also provided publicly available data, which has been incorporated as reported.

In the case of networks where validated environmental disclosures were unavailable, Gemini applied a structured estimation process. For Ethereum-based tokens (e.g. ERC-20 assets), energy consumption (S.8), energy intensity (S.10) and Scope 1 (S.12) and Scope 2 (S.13) emissions were apportioned proportionally from Ethereum’s total energy footprint (~4.28 GWh per year) using usage category proxies such as relative transaction volume or protocol activity. For proof-of-work assets without public data (e.g. Litecoin, Dogecoin, Bitcoin Cash), estimates were developed based on known network hashrates, mining hardware efficiency assumptions, and energy grid emission factors. Where required (i.e. for networks with annual energy consumption exceeding 500,000 kWh).

In terms of the renewable energy % (S.10) for Bitcoin, the figure was directly derived from the Cambridge Digital Mining Industry Report. For all other tokens, there was no publicly available verifiable data on renewable energy %. For the purpose of sustainability disclosures, a 40% renewable energy mix is assumed, aligned with the reported global average share of renewable electricity generation. This estimate is used solely as a conservative and globally representative proxy in the absence of node-level energy sourcing data. The figure excludes nuclear and is based on global electricity generation statistics, not token-specific measurements.

All indicators reflect gross impacts. No offsetting, forward-looking projections, or hypothetical sustainability gains are included in the reported data. In line with Article 6(5) of the RTS, only actual consumption and emissions are shown.

Where estimations were required, they are clearly indicated in the disclosure tables. These notes include the assumptions applied (e.g. allocation logic, emission factors) and identify the reference network or source used to construct the estimate. All assumptions are applied consistently and conservatively to avoid overstating environmental efficiency.

Gemini’s methodology is reviewed annually and whenever a material update is required, in line with regulatory obligations. As more verified environmental data becomes available from crypto networks, Gemini will update and refine its disclosures accordingly. This ensures continued alignment with the sustainability disclosure objectives of MiCA and with best practices across the industry.

Table example:

		Energy			GHG Emissions		
S.3 Name of the crypto-asset	S.4 Consensus Mechanism	S.8 Energy Consumption (kWh)	S.10 Renewable energy consumption (%)	S.11 Energy Intensity (kWh per validated transaction)	S.12 Scope 1 DLT GHG emissions – Controlled (tCO2e)	S.13 Scope 2 DLT GHG emissions – Purchased (tCO2e)	S.14 GHG Intensity (kgCO2e/tx)
BTC	Proof of Work (PoW)	198,550,000,000	52.4%	18.505758	0	81201854.83	7.572224855809

ETH	Proof of Stake (PoS)	4,280,000.00000	40%	0.000262	0	1324.170087	0.000080624352
LTC	Proof of Work (PoW)	3,700,000,000	40%	0.160000	0	1548560.6	0.000392066770
USDC	Token / No Consensus Algorithm	105,163.16623	-	-	-	-	-