Polygon (POL)

Mandatory information on principal adverse impacts on the climate and other environment-related adverse impacts of the consensus mechanism.

Indicator Code	Field Name	Content
S.1	Name	Payhound Limited
S.2	Relevant legal entity identifier	9845001DD90AF543DC90
S.3	Crypto-Asset Name	Polygon (POL)
S.4	Consensus Mechanism	Proof-of-Stake (PoS)
S.4	Incentive Mechanisms and Applicable Fees	Polygon uses a Proof-of-Stake (PoS) network where validators stake MATIC tokens to secure the blockchain and earn staking rewards, while delegators can earn a portion by supporting validators. Users pay transaction (gas) fees in MATIC for transfers and smart contract interactions. These incentives and fees align economic interests and maintain network security.
S.6	Start of Reporting Period	2025-01-01
S.7	End of Reporting Period	2025-12-31
S.8	Energy Consumption (kWh/year)	~90,000 – 110,000
S.9	Energy consumption sources and Methodologies	Polygon is a Proof-of-Stake (PoS) blockchain, and its energy consumption comes primarily from the validator nodes that maintain the network and validate transactions. Estimates are modeled based on the number of active validators, their server power draw, and continuous operation throughout the year. The methodology aggregates energy use across all nodes to calculate total annual consumption in kWh, highlighting that Polygon's PoS design requires significantly less energy than traditional Proof-of-Work networks.
S.10	Renewable Energy consumption (percentage of the total amount of energy used per calendar year)	37%
S.11	Energy Intensity (energy used per validated transaction in kWh)	~ 0.000002
S.12	Scope 1 DLT GHG emissions – Controlled (in t CO2eq per year)	0
S.13	Scope 2 DLT GHG emissions – Purchased (in t CO2eq per year)	10 – 30
S.14	GHG Intensity (emissions per validated transaction in kg CO2eq)	~0.00005
S.15	Key energy sources and methodologies	Polygon's energy consumption estimates are based on a bottom-up modeling approach, where the primary source of energy use is the validator nodes that maintain and secure the Proof-of-Stake (PoS) network. To model energy use, analysts identify the hardware typically used to run nodes and estimate power draw based on empirical data and public sources; these energy measurements are validated in certified test laboratories and scaled by the

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		number of participating nodes and their operating hours. Because Polygon is connected to the Ethereum network for security, a portion of Ethereum's energy consumption attributable to Polygon's activity is also included using metrics like gas consumption and token implementation identifiers (FFG DTI). For calculating renewable energy share and emissions, the geographic locations of nodes are mapped (using public and crawler data) and combined with external datasets (e.g., *Our World in Data* on renewable generation and carbon intensity) to estimate the proportion of energy from renewables and the resulting emissions intensity. Assumptions are applied conservatively to ensure that modeled estimates do not understate potential energy use and associated impacts.
S.16	Key GHG sources and methodologies	Polygon's greenhouse gas (GHG) emissions are primarily indirect (Scope 2), arising from electricity consumed by validator nodes that maintain the Proof-of-Stake network. There are no direct controlled emissions (Scope 1) because the network is decentralized and validators are independently operated. Emissions are modeled by estimating annual energy use per validator, mapping geographic locations to regional electricity grid carbon intensities, accounting for renewable energy shares, and applying best-practice blockchain sustainability methodologies.