MiCA White Paper

Hedera (HBAR)

Version 1.1
April 2025

White Paper in accordance with Markets in Crypto Assets Regulation (MiCAR)
for the European Economic Area (EEA).

Purpose: seeking admission to trading in EEA.

Prepared and Filed by LCX.com

NOTE: THIS CRYPTO-ASSET WHITE PAPER HAS NOT BEEN APPROVED BY ANY COMPETENT AUTHORITY IN ANY MEMBER STATE OF THE EUROPEAN ECONOMIC AREA. THE PERSON SEEKING ADMISSION TO TRADING IS SOLELY RESPONSIBLE FOR THE CONTENT OF THIS CRYPTO-ASSET WHITE PAPER ACCORDING TO THE EUROPEAN ECONOMIC AREA'S MARKETS IN CRYPTO-ASSET REGULATION (MICA).

This white paper has been prepared in accordance with the requirements set forth in Commission Implementing Regulation (EU) 2024/2984, ensuring that all relevant reporting formats, content specifications, and machine-readable structures outlined in Annex I of this regulation have been fully mapped and implemented, particularly reflected through the Recitals, to enable proper notification under the Markets in Crypto-Assets Regulation (MiCAR).

00 TABLE OF CONTENT

01 DATE OF NOTIFICATION

2025-03-13

COMPLIANCE STATEMENTS

02 This crypto-asset white paper has not been approved by any competent authority in any Member State of the European Economic Area. The offeror of the crypto-asset is solely responsible for the content of this crypto-asset white paper.

Where relevant in accordance with Article 6(3), second subparagraph of Regulation (EU) 2023/1114, reference shall be made to ‘person seeking admission to trading’ or to ‘operator of the trading platform’ instead of ‘offeror’.

03 This crypto-asset white paper complies with Title II of Regulation (EU) 2023/1114 and, to the best of the knowledge of the management body, the information presented in the crypto-asset white paper is fair, clear and not misleading and the crypto-asset white paper makes no omission likely to affect its import.

04 The crypto-asset referred to in this white paper may lose its value in part or in full, may not always be transferable and may not be liquid.

05 Not applicable

06 The crypto-asset referred to in this white paper is not covered by the investor compensation schemes under Directive 97/9/EC of the European Parliament and of the Council.The crypto-asset referred to in this white paper is not covered by the deposit guarantee schemes under Directive 2014/49/EU of the European Parliament and of the Council.

SUMMARY

07 Warning

This summary should be read as an introduction to the crypto-asset white paper. The prospective holder should base any decision to purchase this crypto-asset on the content of the crypto-asset white paper as a whole and not on the summary alone. The offer to the public of this crypto-asset does not constitute an offer or solicitation to purchase financial instruments and any such offer or solicitation can be made only by means of a prospectus or other offer documents pursuant to the applicable national law.

This crypto-asset white paper does not constitute a prospectus as referred to in Regulation (EU) 2017/1129 of the European Parliament and of the Council (36) or any other offer document pursuant to Union or national law.

08 Characteristics of the crypto-asset

HBAR is the native digital asset of the Hedera Hashgraph network, a decentralized public distributed ledger (often termed a DLT) designed for high throughput and low-latency transactions. HBAR serves as the fuel for the Hedera network by paying transaction fees and securing network services (such as smart contract execution, file storage, and consensus timestamping). The Hedera network achieves consensus through the Hashgraph algorithm – a leaderless, asynchronous Byzantine Fault Tolerant consensus mechanism (“gossip-about-gossip” and virtual voting) – rather than traditional blockchain mining or typical proof-of-stake block production. This design allows HBAR transactions to finalize within seconds, enabling fast micropayments and data integrity streams with minimal energy usage.

Holders of HBAR do not receive any ownership rights, profit share, or governance role in Hedera Hashgraph by virtue of holding the token. Governance of the network is conducted by the Hedera Governing Council (a group of up to 39 independent organizations), not by HBAR token holders. Once an HBAR transaction is validated and reaches consensus, it is final and irreversible on the ledger.

09 Not applicable

10 Key information about the offer to the public or admission to trading

HBAR is a decentralized, freely-tradable crypto-asset and there is no centralized entity conducting a public offering of HBAR. The Hedera Hashgraph network launched HBAR in 2018 as a fixed-supply token, and HBAR has since been widely distributed and traded on global markets. LCX AG (the offeror in this context) does not issue or control HBAR’s supply; it is acting as a Crypto-Asset Service Provider facilitating the trading, custody, and related services for HBAR in compliance with MiCA. This document is a voluntary disclosure to support HBAR’s admission to trading on the LCX platform under the new MiCA regulatory framework. It does not represent a new issuance or sale of HBAR, but rather provides regulatory-aligned information on an existing crypto-asset.

Since HBAR is already in circulation and actively traded, this white paper is not an offer of new tokens or a fundraising event. It is intended to inform market participants about HBAR’s attributes and the regulatory context of its trading on LCX. No subscription period or issue price is set by LCX, as LCX only enables secondary market trading of HBAR. Trading of HBAR on the LCX platform will be conducted in accordance with market conditions and regulatory requirements, similar to other supported crypto-assets.

Total offer amount	Not applicable
Total number of tokens to be offered to the public	Not applicable
Subscription period	Not applicable
Minimum and maximum subscription amount	Not applicable
Issue price	Not applicable
Subscription fees (if any)	Not applicable
Target holders of tokens	Not applicable
Description of offer phases	Not applicable
CASP responsible for placing the token (if any)	Not applicable
Form of placement	Not applicable
Admission to trading	LCX AG, Herrengasse 6, 9490 Vaduz, Liechtenstein

A. PART A - INFORMATION ABOUT THE OFFEROR OR THE PERSON SEEKING ADMISSION TO TRADING

A.1 Name

LCX

A.2 Legal Form

AG

A.3 Registered Address

Herrengasse 6, 9490 Vaduz, Liechtenstein

A.4 Head Office

Herrengasse 6, 9490 Vaduz, Liechtenstein

A.5 Registration Date

24.04.2018

A.6 Legal Entity Identifier

529900SN07Z6RTX8R418

A.7 Another Identifier Required Pursuant to Applicable National Law

FL-0002.580.678-2

A.8 Contact Telephone Number

+423 235 40 15

A.9 E-mail Address

legal@lcx.com

A.10 Response Time (Days)

020

A.11 Parent Company

Not applicable

A.12 Members of the Management Body

Full Name	Business Address	Function
Monty C. M. Metzger	Herrengasse 6, 9490 Vaduz, Liechtenstein	President of the Board
Katarina Metzger	Herrengasse 6, 9490 Vaduz, Liechtenstein	Board Member
Anurag Verma	Herrengasse 6, 9490 Vaduz, Liechtenstein	Director of Technology

A.13 Business Activity

LCX provides various crypto-asset services under Liechtenstein's Token and Trusted Technology Service Provider Act ("Token- und Vertrauenswürdige Technologie-Dienstleister-Gesetz" in short "TVTG") also known as the Blockchain Act. These include custody and administration of crypto-assets, offering secure storage for clients' assets and private keys. LCX operates a trading platform, facilitating the matching of buy and sell orders for crypto-assets. It enables both

crypto-to-fiat and crypto-to-crypto exchanges, ensuring compliance with AML and KYC regulations. LCX also supports token placements, marketing crypto-assets on behalf of offerors.

Under MiCA, LCX is classified as a Crypto-Asset Service Provider (CASP). LCX is not yet formally supervised under MiCA until the license is granted by the competent authority.

Under the TVTG framework, LCX provides:

- TT Depositary – Custody and safekeeping of crypto-assets.
- TT Trading Platform Operator – Operation of a regulated crypto-asset exchange.
- TT Exchange Service Provider – Crypto-to-fiat and crypto-to-crypto exchange.
- Token Issuer – Marketing and distribution of tokens.
- TT Transfer Service Provider – Crypto-asset transfers between ledger addresses.
- Token Generator & Tokenization Service Provider – Creation and issuance of tokens.
- Physical Validator – Enforcement of token-based rights on TT systems.
- TT Verification & Identity Service Provider – Legal capacity verification and identity registration.
- TT Price Service Provider – Providing aggregated crypto-asset price information.

A.14 Parent Company Business Activity

Not applicable

A.15 Newly Established

false

A.16 Financial Condition for the past three Years

LCX AG has a strong capital base, with CHF 1 million (approx. 1,126,000 USD) in share capital (Stammkapital) and a solid equity position (Eigenkapital) in 2023. The company has experienced fluctuations in financial performance over the past three years, reflecting the dynamic nature of the crypto market. While LCX AG recorded a loss in 2022, primarily due to a market downturn and a security breach, it successfully covered the impact through reserves. The company has remained financially stable, achieving revenues and profits in 2021, 2023 and 2024 while maintaining break-even operations.

In 2023 and 2024, LCX AG strengthened its operational efficiency, expanded its business activities, and upheld a stable financial position. Looking ahead to 2025, the company anticipates positive financial development, supported by market uptrends, an inflow of customer funds, and strong business performance. Increased adoption of digital assets and service expansion are expected to drive higher revenues and profitability, further reinforcing LCX AG's financial position.

A.17 Financial Condition Since Registration

LCX AG has been financially stable since its registration, supported by CHF 1 million in share capital (Stammkapital) and continuous business growth. Since its inception, the company has expanded its operations, secured multiple regulatory registrations, and established itself as a key player in the crypto and blockchain industry.

While market conditions have fluctuated, LCX AG has maintained strong revenues and break-even operations. The company has consistently reinvested in its platform, technology, and regulatory compliance, ensuring long-term sustainability. The LCX Token has been a fundamental part of the ecosystem, with a market capitalization of approximately $200 million USD and an all-time high exceeding $500 million USD in 2022. Looking ahead, LCX AG anticipates continued financial growth, driven by market uptrends, increased adoption of digital assets, and expanding business activities.

B. PART B - INFORMATION ABOUT THE ISSUER, IF DIFFERENT FROM THE OFFEROR OR PERSON SEEKING ADMISSION TO TRADING[1]

B.1 Issuer different from offeror or person seeking admission to trading

True

B.2 Name

Hedera Hashgraph, LLC

B.3 Legal Form

Limited Liability Company (LLC) organized under Delaware law, United States.

B.4 Registered Address

3400 N Central Expressway, Suite 470B, Richardson, TX 75080, United States

B.5 Head Office

3400 N Central Expressway, Suite 470B, Richardson, TX 75080, United States

B.6 Registration Date

2018

B.7 Legal Entity Identifier

Not applicable

B.8 Another Identifier Required Pursuant to Applicable National Law

Not applicable

B.9 Parent Company

Swirlds, Inc. – The original holder of the Hashgraph patent and a founding member of Hedera Hashgraph, LLC

B.10 Members of the Management Body

Leemon Baird – Co-founder and Chief Scientist.

Mance Harmon – Co-founder.

Bill Miller – Chair of the Board.

B.11 Business Activity

Hedera Hashgraph, LLC is responsible for:

Developing and maintaining the Hedera network.

Overseeing network governance and compliance.

Managing the HBAR treasury and network upgrades.

B.12 Parent Company Business Activity

Not applicable

[1] **[19-04-2025]** All information available in the public domain regarding the issuer has been added in Part- B

C. PART C - INFORMATION ABOUT THE OPERATOR OF THE TRADING PLATFORM IN CASES WHERE IT DRAWS UP THE CRYPTO-ASSET WHITE PAPER AND INFORMATION ABOUT OTHER PERSONS DRAWING THE CRYPTO-ASSET WHITE PAPER PURSUANT TO ARTICLE 6(1), SECOND SUBPARAGRAPH, OF REGULATION (EU) 2023/1114

C.1 Name

LCX AG

C.2 Legal Form

AG

C.3 Registered Address

Herrengasse 6, 9490 Vaduz, Liechtenstein

C.4 Head Office

Herrengasse 6, 9490 Vaduz, Liechtenstein

C.5 Registration Date

24.04.2018

C.6 Legal Entity Identifier

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C.7 Another Identifier Required Pursuant to Applicable National Law

FL-0002.580.678-2

C.8 Parent Company

Not Applicable

C.9 Reason for Crypto-Asset White Paper Preparation

LCX is voluntarily preparing this MiCA-aligned whitepaper for Hedera (HBAR) to enhance transparency, regulatory clarity, and investor confidence. As Hedera is classified as an “Other Crypto-Asset” under MiCA Article 4(2), a white paper is not required for its offering or trading. However, LCX is providing this document as part of its commitment to regulatory best practices and transparency.

LCX has applied for authorization as a Crypto-Asset Service Provider (CASP) and is aligning its operations with MiCA requirements while facilitating HBAR trading on its platform. This white paper serves to provide clear, standardized information about HBAR for users and investors, even though it is not a MiCA requirement.

C.10 Members of the Management Body

Full Name	Business Address	Function
Monty C. M. Metzger	Herrengasse 6, 9490 Vaduz, Liechtenstein	President of the Board

Katarina Metzger	Herrengasse 6, 9490 Vaduz, Liechtenstein	Board Member
Anurag Verma	Herrengasse 6, 9490 Vaduz, Liechtenstein	Director of Technology

C.11 Operator Business Activity

LCX provides various crypto-asset services under Liechtenstein's Token and Trusted Technology Service Provider Act ("Token- und Vertrauenswürdige Technologie-Dienstleister-Gesetz" in short "TVTG") also known as the Blockchain Act. These include custody and administration of crypto-assets, offering secure storage for clients' assets and private keys. LCX operates a trading platform, facilitating the matching of buy and sell orders for crypto-assets. It enables both crypto-to-fiat and crypto-to-crypto exchanges, ensuring compliance with AML and KYC regulations. LCX also supports token placements, marketing crypto-assets on behalf of offerors.

Under MiCA, LCX is classified as a Crypto-Asset Service Provider (CASP). LCX is not yet formally supervised under MiCA until the license is granted by the competent authority.

Under the TVTG framework, LCX provides:

- TT Depositary – Custody and safekeeping of crypto-assets.
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- TT Verification & Identity Service Provider – Legal capacity verification and identity registration.
- TT Price Service Provider – Providing aggregated crypto-asset price information.

C.12 Parent Company Business Activity

Not Applicable

C.13 Other persons drawing up the white paper under Article 6 (1) second subparagraph MiCA

Not Applicable

C.14 Reason for drawing up the white paper under Article 6 (1) second subparagraph MiCA

Not Applicable

D. PART D - INFORMATION ABOUT THE CRYPTO-ASSET PROJECT

D.1 Crypto-Asset Project Name

Hedera

D.2 Crypto-Assets Name

HBAR

D.3 Abbreviation

HBAR

D.4 Crypto-Asset Project Description

Hedera Hashgraph is an enterprise-grade public distributed ledger network launched in 2018 to provide a fast, fair, and secure infrastructure for decentralized applications. Instead of a traditional blockchain, Hedera utilizes the **Hashgraph** consensus algorithm, which does not bundle transactions into blocks or rely on chain-based mining. This novel architecture achieves high throughput (the network can handle thousands of transactions per second) and low-latency finality (transactions typically confirm within 3-5 seconds) by using a directed acyclic graph (DAG) data structure and a gossip protocol for information propagation. Each node rapidly “gossips” events (transactions with timestamps and hashes) to other nodes, and through **gossip-about-gossip** and virtual voting, the network reaches consensus on the order of transactions with **asynchronous Byzantine Fault Tolerance** (a strongest form of security for distributed networks). This design allows Hedera to finalize transactions efficiently without energy-intensive proof-of-work mining and with a level of trust that no single node or small group can maliciously influence the ordering of transactions. The Hedera network officially launched its mainnet in August 2018 with a fixed supply of 50 billion HBAR tokens minted at genesis.

D.5 Details of all persons involved in the implementation of the crypto-asset project

Hedera Hashgraph is an open-source public network and does not have a single centralized issuer; its ongoing development and operation are maintained by a decentralized community and formal governance body. Key contributors and entities in the Hedera project include:

Full Name	Business Address	Function
Dr. Leemon Baird	Not applicable	Co-Founder & Chief Scientist (Inventor of Hashgraph algorithm) – Leads algorithm design and security research for Hedera.
Mance Harmon	Not applicable	Co-Founder (CEO of Swirlds Labs) – Initially co-led Hedera’s creation, now overseeing core development through Swirlds Labs.

Hedera Governing Council	Global	Governance & Oversight – Collective decision-making body that manages network governance, approves updates, and oversees treasury and legal compliance.
Hedera Core Developers (Swirlds Labs & Community)	Global	Software Development & Maintenance – Swirlds Labs (the commercial entity evolved from Hedera's founding team) and open-source contributors develop and maintain the Hedera node software, SDKs, and infrastructure.
Hedera Node Operators	Global	Transaction Validation & Network Securit
HBAR Foundation	Global	Ecosystem Development – An independent organization funded with HBAR treasury allocations to spur ecosystem growth.

D.6 Utility Token Classification

false

D.7 Key Features of Goods/Services for Utility Token Projects

Not applicable

D.8 Plans for the Token

Not applicable

D.9 Resource Allocation

Not applicable

D.10 Planned Use of Collected Funds or Crypto-Assets

Not applicable

E. PART E - INFORMATION ABOUT THE OFFER TO THE PUBLIC OF CRYPTO-ASSETS OR THEIR ADMISSION TO TRADING

E.1 Public Offering or Admission to Trading

ATTR

E.2 Reasons for Public Offer or Admission to Trading

LCX AG is seeking the admission of HBAR to trading on its platform and has prepared this white paper to facilitate that process in compliance with MiCA. The primary reasons for this admission are to **provide EEA investors access** to HBAR within a regulated environment and to **set a high transparency standard**. By voluntarily complying with MiCA's disclosure requirements, LCX aims to remove uncertainty for market participants and regulators regarding HBAR's status. Although HBAR itself is a well-established crypto-asset, the European regulatory landscape is evolving; this initiative by LCX ensures that trading HBAR on our platform aligns with MiCA's investor protection and market integrity objectives.

E.3 Fundraising Target

Not applicable

E.4 Minimum Subscription Goals

Not applicable

E.5 Maximum Subscription Goal

Not applicable

E.6 Oversubscription Acceptance

Not applicable

E.7 Oversubscription Allocation

Not applicable

E.8 Issue Price

Not applicable

E.9 Official Currency or Any Other Crypto-Assets Determining the Issue Price

Not applicable

E.10 Subscription Fee

Not applicable

E.11 Offer Price Determination Method

Not applicable

E.12 Total Number of Offered/Traded Crypto-Assets

As of March 2025, approximately 42.2 billion HBAR are in circulation out of a fixed total supply of 50 billion HBAR. All 50 billion HBAR were created at the launch of the Hedera network (genesis). The difference between the total supply and circulating supply (around 7.8 billion HBAR) consists of tokens that remain held in Hedera's treasury accounts and are being released on a predetermined schedule to support network operations, ecosystem development (such as grants via the HBAR Foundation), and node rewards.

E.13 Targeted Holders

ALL

E.14 Holder Restrictions

Not applicable

E.15 Reimbursement Notice

Not applicable

E.16 Refund Mechanism

Not applicable

E.17 Refund Timeline

Not applicable

E.18 Offer Phases

Not applicable

E.19 Early Purchase Discount

Not applicable

E.20 Time-Limited Offer

Not applicable

E.21 Subscription Period Beginning

Not applicable

E.22 Subscription Period End

Not applicable

E.23 Safeguarding Arrangements for Offered Funds/Crypto-Assets

Not applicable

E.24 Payment Methods for Crypto-Asset Purchase

Not applicable

E.25 Value Transfer Methods for Reimbursement

Not applicable

E.26 Right of Withdrawal

Not applicable

E.27 Transfer of Purchased Crypto-Assets

Not applicable

E.28 Transfer Time Schedule

Not applicable

E.29 Purchaser's Technical Requirements

Not applicable

E.30 Crypto-asset service provider (CASP) name

Not applicable

E.31 CASP identifier

Not applicable

E.32 Placement Form

NTAV

E.33 Trading Platforms name

LCX AG

E.34 Trading Platforms Market Identifier Code (MIC)

LCXE

E.35 Trading Platforms Access

HBAR is widely traded on multiple regulated and unregulated trading platforms globally. As a decentralized crypto-asset with no central issuer, HBAR is not restricted to a single exchange and can be accessed by retail and institutional investors worldwide.

LCX Exchange also provides access to HBAR trading with HBAR/EUR pair. Investors can access HBAR through LCX.com, the official LCX exchange, as well as other supported cryptocurrency trading platforms. To trade HBAR, users must register, complete KYC (Know Your Customer) verification, and comply with platform-specific requirements.

E.36 Involved Costs

Not applicable

E.37 Offer Expenses

Not applicable

E.38 Conflicts of Interest

Not applicable

E.39 Applicable Law

Not applicable – As HBAR is a decentralized, open-source crypto-asset with no central issuer or governing entity, it does not fall under the jurisdiction of any specific legal framework. However, the HBAR ledger operates globally, and the regulatory treatment of HBAR may vary depending on the jurisdiction and applicable financial laws governing crypto-assets.

E.40 Competent Court

In case of disputes related to services provided by LCX, the competent court is: The Courts of Liechtenstein, with jurisdiction in accordance with Liechtenstein law and applicable EU regulations.

F. PART F - INFORMATION ABOUT THE CRYPTO-ASSETS

F.1 Crypto-Asset Type

Other Crypto-Asset

F.2 Crypto-Asset Functionality

HBAR is a decentralized utility token that powers the Hedera Hashgraph network's services. It is used to pay for transaction fees on the network (for transfers, smart contract actions, data logging, etc.), providing an economic incentive for nodes to process and order transactions. HBAR also plays a role in network security: Hedera uses a form of proof-of-stake — network nodes (primarily Council members) must hold and stake HBAR to participate in consensus, weighted by stake, which helps prevent Sybil attacks.

HBAR is not issued to provide access to services from a specific issuer or offeror. Its utility is internal to the Hedera network for fees and security, and it is not linked to any centralized entity's commercial service offering. Thus, HBAR does not meet the criteria for a utility token under Article 3(1)(11) MiCAR.

F.3 Planned Application of Functionalities

HBAR is a fully operational crypto-asset with an established role in the Hedera network. It is presently used for all network operations as described (transaction fees, staking, and value transfer). Going forward, HBAR's application will continue in this capacity as the Hedera network grows and evolves. As Hedera's services expand (through network upgrades and Hedera Improvement Proposals), HBAR will remain central – for example, if new network features are introduced (such as enhanced consensus services or new tokenization frameworks), HBAR will be required to use those services in the form of fees or collateral. The Hedera roadmap includes further decentralization of node operations and potential introduction of community-run nodes; in such scenarios, HBAR's staking functionality will become accessible to a broader set of participants (beyond the Council), potentially increasing HBAR's use in governance-weight and reward distribution.

F.4 Type of white paper

OTHR

F.5 The type of submission

NEWT

F.6 Crypto-Asset Characteristics

HBAR is a fixed-supply, native cryptocurrency of the Hedera Hashgraph public network, designed for speed, security, and energy efficiency in transactions. It operates on a DAG-based ledger (Hashgraph) rather than a linear blockchain, enabling high transaction throughput and fast finality without requiring miners or intensive computational work. The consensus is achieved via a stake-weighted, gossip-based protocol, meaning any node's influence in adding transactions is proportional to the HBAR it has staked (either owned or via proxy stakes), thus leveraging economic skin-in-the-game for security. Transactions on Hedera typically reach final consensus within 3–5 seconds, and network fees are very low and stable (often around $0.0001 per transaction, paid in HBAR). This makes the cost of using HBAR predictable and negligible for most use cases, encouraging microtransactions and high-frequency usage. Because Hedera's consensus does not involve mining, the network's energy consumption is extremely low – on the

order of 0.00017 kWh per transaction on average, which is dramatically lower than traditional proof-of-work blockchains. Hedera has positioned HBAR as one of the most sustainable public cryptocurrencies, reinforced by the network's practice of purchasing carbon offsets to maintain carbon-negative operations.

F.7 Commercial name or trading name

Hedera Hashgraph (HBAR)

F.8 Website of the issuer

Not applicable

F.9 Starting date of offer to the public or admission to trading

2025-04-13

F.10 Publication date

2025-04-13

F.11 Any other services provided by the issuer

Not applicable

F.12 Language or languages of the white paper

English

F.13 Digital Token Identifier Code used to uniquely identify the crypto-asset or each of the several crypto assets to which the white paper relates, where available

DHQPD433B

F.14 Functionally Fungible Group Digital Token Identifier, where available

Not applicable

F.15 Voluntary data flag

true

F.16 Personal data flag

false

F.17 LEI eligibility

false

F.18 Home Member State

Liechtenstein

F.19 Host Member States

Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden.

G. PART G - INFORMATION ON THE RIGHTS AND OBLIGATIONS ATTACHED TO THE CRYPTO-ASSETS

G.1 Purchaser Rights and Obligations

Purchasers or holders of HBAR do not obtain any contractual claim or entitlement against an issuer or any other party by holding the token. HBAR is a decentralized digital asset and holding it confers the ability to use it within the Hedera network – namely, the right to transfer HBAR to others, to utilize it to pay for network services (transaction fees), and to stake it to a node (or proxy stake to another node) for participation in consensus (and potentially earn staking rewards). There are no dividend, profit-sharing, or voting rights in a corporate sense attached to HBAR. Owning HBAR simply means one can access and transact on the Hedera Hashgraph ledger according to its protocol rules.

G.2 Exercise of Rights and Obligation

Since HBAR has no centralized issuer granting rights, the exercise of any rights is done directly through the network's functionality. If an HBAR holder wishes to transfer tokens, they exercise that "right" by creating a transaction on the Hedera network (using their wallet software) and submitting it to the network.

G.3 Conditions for Modifications of Rights and Obligations

Any changes to HBAR's fundamental rights and obligations would equate to changes in the Hedera network protocol or governance policies, as HBAR rights are defined by the network's functioning. No single party (including Hedera's creators or the Council) can unilaterally alter the core properties of HBAR; modifications require a governed process. Hedera's Governing Council must deliberate and vote to approve any significant network upgrades or changes in policy. Typically, software changes (node software updates that could affect how transactions or staking work) must achieve a supermajority approval by the Council before being deployed.

G.4 Future Public Offers

Not applicable

G.5 Issuer Retained Crypto-Assets

Not applicable

G.6 Utility Token Classification

No

G.7 Key Features of Goods/Services of Utility Tokens

Not applicable

G.8 Utility Tokens Redemption

Not applicable

G.9 Non-Trading Request

True

G.10 Crypto-Assets Purchase or Sale Modalities

Not applicable

G.11 Crypto-Assets Transfer Restrictions

Not applicable

G.12 Supply Adjustment Protocols

HBAR's total supply is permanently fixed at 50 billion tokens, a fundamental aspect of Hedera's non-inflationary economic model. All 50 billion HBAR were pre-minted at network inception and are held in various treasury accounts (both allocated and unallocated) until gradually released. Unlike some blockchain networks, Hedera does not support ongoing minting or mining—no new HBAR will ever be created beyond the original $ 50 billion supply. Instead, transaction fees and network operations recycle the existing supply rather than generating additional tokens.
The 50,000,000,000 HBAR supply limit is hardcoded into the network software, with multiple safeguards preventing arbitrary changes, ensuring predictability and long-term economic stability.

G.13 Supply Adjustment Mechanisms

HBAR follows a structured and controlled distribution model, ensuring the gradual release of its pre-minted 50 billion HBAR supply while maintaining a hard cap. The supply is distributed through scheduled treasury allocations, ecosystem incentives, and staking rewards, with no additional minting or inflationary issuanc**e**.

G.14 Token Value Protection Schemes

False

G.15 Token Value Protection Schemes Description

Not Applicable

G.16 Compensation Schemes

False

G.17 Compensation Schemes Description

Not Applicable

G.18 Applicable Law

Not applicable – As HBAR is a decentralized, open-source crypto-asset with no central issuer or governing entity, it does not fall under the jurisdiction of any specific legal framework. However, the HBAR operates globally, and regulatory treatment of HBAR may vary across jurisdictions based on applicable financial and securities laws.

G.19 Competent Court

Not applicable – As HBAR is a decentralized, open-source crypto-asset with no central issuer or governing entity, it does not fall under the jurisdiction of any specific legal framework.

In case of disputes related to services provided by LCX, the competent court is the Courts of Liechtenstein, with jurisdiction in accordance with Liechtenstein law and applicable EU regulations.

H. PART H – INFORMATION ON THE UNDERLYING TECHNOLOGY

H.1 Distributed ledger technology

Hedera Hashgraph operates on a public, permissioned distributed ledger, utilizing its proprietary Hashgraph consensus algorithm instead of a traditional blockchain. While the network is publicly accessible, allowing anyone to create accounts and submit transactions, only approved Governing Council members currently operate consensus nodes. Over time, Hedera aims to transition towards a more permissionless node model, enhancing decentralization.

Unlike blockchains that rely on sequential block production, Hashgraph structures data as a directed acyclic graph (DAG), where transactions are grouped into events rather than blocks. These events contain batches of transactions, timestamps, cryptographic hashes of previous events, and digital signatures. Nodes propagate information through a “gossip about gossip” protocol, ensuring fast and efficient transaction validation. The virtual voting algorithm allows all nodes to independently determine the exact consensus order of transactions without requiring leaders or committees, ensuring fairness, security, and rapid finality.

Hedera is designed for enterprise-grade applications, offering high throughput, low fees, and strong security guarantees. Future network developments include expanded node participation, enhanced smart contract capabilities, and continued interoperability improvements to support diverse financial and decentralized applications.

For further information:

- **HBAR Whitepaper:** https://hedera.com/papers
- **HBAR Explorer:** https://hashscan.io/mainnet/dashboard
- **HBAR Main Repository:** https://github.com/hashgraph
- **HBAR Developer Portal:** https://portal.hedera.com/

H.2 Protocols and Technical Standards

Hedera Hashgraph adheres to rigorous technical protocols and cryptographic standards to ensure scalability, security, and interoperability while maintaining enterprise-grade reliability.

Hashgraph Consensus Protocol

Hedera operates on a Hashgraph consensus algorithm, a unique form of Asynchronous Byzantine Fault Tolerance (aBFT) that achieves high-speed, fair, and deterministic finality without mining or traditional staking. Unlike blockchains that rely on sequential block production, Hedera’s gossip-about-gossip and virtual voting mechanisms allow all participating nodes to contribute to consensus collectively without a leader or committee structure.

Open Source and Licensing

Hedera’s node software and development tools were open-sourced in 2022 under the Apache 2.0 License, allowing for community contributions, transparency, and third-party audits. The codebase is actively maintained on GitHub, following open-source best practices for security, version control, and governance.

Cryptographic Standards

Hedera employs industry-standard cryptographic techniques for securing accounts and transactions:

- Ed25519 public-private key pairs ensure high-speed and secure digital signatures.
- ECDSA (secp256k1) support enables Ethereum-style key compatibility, allowing seamless integration with existing wallets and custodial solutions.
- SHA-384 hashing is used within the Hashgraph protocol for data integrity and security.
- All communication between nodes is encrypted using TLS (Transport Layer Security).

Ethereum Compatibility (EVM)

Hedera's Smart Contract Service runs an Ethereum Virtual Machine (EVM) environment, allowing developers to deploy and interact with Solidity-based smart contracts using standard Ethereum tools like Truffle, Hardhat, Remix, and MetaMask. By running a modified Hyperledger Besu Ethereum client, Hedera supports ERC-20 and ERC-721 token standards, facilitating interoperability with Ethereum-based applications.

APIs and SDKs

Hedera provides multiple layers of API access for developers and enterprises:

- gRPC API for high-performance, low-latency interactions.
- REST APIs for querying mirror nodes and historical data.
- Protobuf-based transaction signing, optimizing data transmission.
- Official SDKs in Java, JavaScript/TypeScript, and Go, designed with native language conventions for ease of use.

Token Standards

Hedera Token Service (HTS) offers a native tokenization framework, reducing the need for smart contracts to issue fungible and non-fungible tokens (NFTs). HTS provides built-in security, compliance features (KYC flags, freezing, and wiping), and atomic multi-token transfers, ensuring efficient and scalable asset management.

Interoperability and Compliance with Standards

Hedera aligns with emerging industry and regulatory standards to enhance digital asset adoption:

- ISO-compliant Digital Token Identifier (DTI) support ensures standardized token representation.
- InterWork Alliance (now part of GBBC) collaboration focuses on tokenization frameworks and sustainability initiatives.
- Cross-network interoperability is enhanced through third-party bridges and HTS-based wrapped assets.

Networking and Infrastructure

Hedera nodes communicate using standard networking protocols (TCP/IP, TLS) and are cloud-agnostic, running on AWS, Google Cloud, Azure, and private data centers. The gossip protocol operates over UDP/TCP sockets, while gRPC enables efficient remote procedure calls, ensuring scalable and reliable infrastructure for enterprise applications.

Hedera's adherence to strong cryptographic foundations, interoperability standards, and enterprise security protocols makes it a robust, scalable, and compliant distributed ledger technology for global applications.

H.3 Technology Used

Hedera Hashgraph is a high-performance, decentralized distributed ledger designed for secure, scalable, and low-cost transactions. Unlike blockchain-based systems, Hedera uses a Hashgraph consensus mechanism with Asynchronous Byzantine Fault Tolerance (aBFT), gossip about gossip, and virtual voting to achieve fast, fair, and secure transaction finality without mining or traditional staking.

Hedera provides a suite of tools for developers and users, including non-custodial wallets like HashPack and support for hardware wallets such as Ledger for secure HBAR storage and transactions. Interoperability solutions, such as Hedera Token Service (HTS) for native tokenization and Ethereum Virtual Machine (EVM) compatibility, enable seamless asset transfers and smart contract execution across multiple networks. Developers can leverage Hedera APIs

and SDKs, including Hedera JavaScript SDK and Hedera Consensus Service (HCS), to build efficient and scalable applications.
Hedera ensures network integrity and security through HBAR staking, Sybil attack resistance, and the governance of the Hedera Governing Council, which includes global enterprises that oversee major protocol decisions. With low, predictable fees, high throughput, and enterprise-grade security, Hedera is a leading distributed ledger technology (DLT) solution for financial services, tokenized assets, and enterprise applications, providing fast, scalable, and cost-effective digital transactions.

H.4 Consensus Mechanism

Hedera Hashgraph operates on a leaderless, aBFT-based consensus mechanism, providing a fast, fair, and secure alternative to traditional blockchain models. Unlike Proof-of-Stake systems that rely on leader selection or committee-based validation, Hedera's Hashgraph algorithm allows all nodes to participate in consensus collectively, ensuring equitable influence without centralization risks.
Transactions achieve instant deterministic finality within seconds, making them irreversible and highly reliable. While HBAR can be staked to support network security, it does not function as a PoS mechanism where validators are selected based on stake. Instead, staking helps prevent Sybil attacks, reinforcing Hedera's scalability and enterprise-grade security while enabling high-speed, low-cost transactions.

H.5 Incentive Mechanisms and Applicable Fees

Hedera's fixed-fee model ensures low, predictable transaction costs, making it efficient for users and enterprises. Unlike PoW or PoS blockchains, Hedera does not rely on mining rewards or inflationary staking incentives. Instead, transactions incur fixed HBAR fees, covering consensus, token transfers, and smart contracts, ensuring cost stability regardless of network congestion.
All fees collected in HBAR are distributed to network nodes, incentivizing validators and ensuring network reliability without inflating the token supply. With a fixed total supply of 50 billion HBAR, the network remains resistant to inflation, reinforcing economic sustainability. Fees also serve as a safeguard against spam transactions, maintaining network efficiency and security while supporting long-term enterprise adoption and scalability.

H.6 Use of Distributed Ledger Technology

True

H.7 DLT Functionality Description[2]

HBAR operates on the Hedera network, which uses a proprietary distributed ledger technology called the Hashgraph consensus algorithm—a highly efficient, asynchronous Byzantine Fault Tolerant (aBFT) alternative to traditional blockchain. Unlike blockchains that rely on sequential block creation, Hashgraph is a Directed Acyclic Graph (DAG) structure that enables high throughput (10,000+ TPS), fast finality (3–5 seconds), and low energy usage. The consensus is

[2] **[19-04-2025]** Added description about DLT functionality in Sub-Part H.7

achieved through virtual voting and gossip-about-gossip protocols, allowing for fair ordering of transactions without mining. Hedera supports smart contracts (EVM-compatible), tokenization, and decentralized governance via its global Governing Council, making it a secure and scalable enterprise-grade DLT.

H.8 Audit

True

H.9 Audit Outcome[3]

Hedera Hashgraph (HBAR) has undergone multiple independent audits to ensure the security and robustness of its platform. Notably, FP Complete conducted comprehensive reviews of Hedera's codebase, including the Hashgraph consensus algorithm and the Hedera Token Service, assessing aspects such as robustness, security, and auditability. Additionally, the Hashgraph consensus algorithm has been formally verified for asynchronous Byzantine Fault Tolerance (aBFT) using the Coq proof system, providing mathematical assurance of its security properties. Furthermore, Quantstamp audited Hedera's stablecoin framework, ensuring compliance and security standards. These audits collectively demonstrate Hedera's commitment to transparency and security in its distributed ledger technology.
Here is the link for HBAR audit report: HBAR Audit Report

[3] **[19-04-2025]** Added Audit Outcome information done by FP Complete in Sub-Part H.9

I. PART I – INFORMATION ON RISKS

I.1 Offer-Related Risks

The admission to trading of HBAR carries risks related to market volatility, regulatory uncertainties, and trading conditions. While HBAR is widely used for cross-border payments and financial transactions, its price can be highly volatile due to factors such as market sentiment, macroeconomic trends, institutional adoption, and speculative activity.

Although HBAR generally has high liquidity, market conditions may change, and external events such as regulatory developments, exchange delistings, or broader financial instability could impact trading. Additionally, evolving legal and compliance frameworks may impose new restrictions on HBAR trading or its use in financial applications, potentially affecting market accessibility in certain jurisdictions.

I.2 Issuer-Related Risks

HBAR lacks a single point-of-failure issuer, the operational and governance framework around Hedera carries its own forms of risk. The decentralization of decision-making helps reduce some risks (no single entity can run off with funds or shut it down arbitrarily), but it also means users rely on a collective to remain cohesive and functional. Those investing in HBAR should consider their confidence in the Hedera Governing Council model and the ongoing commitment of its members. This disclosure notes that these issuer-related risks are relatively lower than with a small startup issuer, but not zero. Hedera's strong roster of members and transparent governance provides some assurance, but like any consortium, continuity and alignment are key risk factors to monitor.

I.3 Crypto-Assets-Related Risks

HBAR is a decentralized digital asset with no central issuer, reducing risks associated with centrally controlled crypto-assets. However, HBAR carries specific risks that investors and users should consider.

Market Risk: HBAR's price is highly volatile, influenced by macroeconomic factors, regulatory developments, and market sentiment, leading to potential gains or losses.

Liquidity Risk: While HBAR is widely traded on multiple exchanges, extreme market conditions or regulatory actions could impact trading volumes and accessibility.

Custodial & Self-Custody Risks: Users must securely manage private keys, as losing access results in permanent asset loss. Holding HBAR on centralized platforms introduces counterparty risks, including exchange insolvency, hacking, or regulatory intervention.

Regulatory & Taxation Risks: Compliance requirements vary across jurisdictions, and evolving regulations may impact HBAR's use in financial services and cross-border transactions.

Network Downtime & Reliability: While Hedera strives for near-100% uptime, the network has experienced temporary disruptions. Downtime during market volatility could prevent users from transacting HBAR, potentially leading to financial losses.

Quantum Computing Threats: As quantum computing advances, it may pose a long-term risk to cryptographic security, affecting key management and transaction signing mechanisms.

Despite these risks, HBAR remains a widely adopted digital asset, valued for fast transactions, low fees, and enterprise-grade reliability. Ongoing network enhancements and governance improvements further strengthen its role in financial services, payments, and tokenization.

I.4 Project Implementation-Related Risks

Hedera's roadmap includes further decentralization, sharding to exceed 10,000 TPS, and enhanced services such as scheduled transactions and cross-network bridging. Delays or failures in implementing these features could impact adoption and market confidence. For instance, if permissionless nodes are significantly postponed, some in the crypto community may question Hedera's decentralization, deterring users who prioritize trustless networks.
Scaling a high-throughput global network requires robust infrastructure. As Hedera expands, it may face challenges such as storage bloat, bandwidth limitations, and increased memory demands on nodes. Managing these issues efficiently will be critical to maintaining network performance and reliability.
Hedera plans to gradually expand community governance, potentially incorporating community-run nodes and token-holder input into decision-making. However, since formal governance remains Council-based, the effectiveness of informal mechanisms remains uncertain.
Quantum computing risks could also pose long-term threats to cryptographic security, necessitating advancements in encryption and key management. While Hedera's Governing Council provides stability and resources to address these risks, its governance model remains a novel experiment in the industry.
Users and stakeholders should closely monitor Hedera's roadmap updates, infrastructure scaling, and community participation to assess how these risks are managed over time.

I.5 Technology-Related Risks

Hedera Hashgraph operates on a unique Hashgraph consensus mechanism, ensuring fast, energy-efficient transactions with Asynchronous Byzantine Fault Tolerance (aBFT). While its design enhances security and scalability, several technical risks could impact the network and HBAR holders.
Network Attacks and Security Breaches: Hedera's consensus model is robust against known attack vectors, assuming less than 1/3 of staked HBAR is controlled by malicious actors. However, if an attacker colluded to control more than 1/3 of total stake, they could disrupt network consensus, posing a risk to transaction finality and network integrity.
Software Bugs: A critical bug in Hedera's consensus logic could lead to transaction order mismatches or, in extreme cases, state corruption, where nodes apply transactions inconsistently, causing network divergence. While rigorous testing reduces this risk, unexpected vulnerabilities could arise.
Smart Contract and Token Exploits: While HBAR's base ledger remains simple and secure, Hedera supports Ethereum Virtual Machine (EVM) smart contracts, introducing

complex token logic. Poorly coded smart contracts or undiscovered vulnerabilities in the EVM layer could be exploited, impacting users and decentralized applications (dApps).
Quantum Computing Threats: Like all blockchain networks, Hedera relies on Ed25519 and secp256k1 elliptic curve cryptography, which could be compromised by advancements in quantum computing. If a sufficiently powerful quantum computer were to break these cryptographic schemes, HBAR transactions and account security could be at risk.
Dependency on External Systems: Hedera relies on external time synchronization (via NTP), which, if manipulated, could affect timestamp accuracy in consensus processes. While median-time logic reduces this risk, extreme clock skews could introduce temporary inconsistencies in transaction ordering.
Maintenance and Upgrades: Regular protocol updates and network maintenance introduce a small risk of unexpected bugs or incompatibility issues. The governance structure, while designed for stability, may also delay critical updates due to its consensus-based decision-making process.
Scalability and Performance Limits: Hedera currently operates at high throughput, but pushing network capacity to its limits may expose unforeseen bottlenecks, potentially affecting transaction speeds and overall efficiency.
Despite these risks, Hedera continues to enhance security, governance, and scalability, reinforcing its position as a high-performance, enterprise-grade distributed ledger.

I.6 Mitigation Measures

Hedera and its community continuously implement security, decentralization, and governance enhancements to mitigate potential risks and ensure the network's resilience and longevity.

Robust Governance and Incident Response. Hedera's Council-based governance model ensures structured decision-making and timely responses to security threats, protocol updates, and emerging risks. The Council's diverse, global membership reduces reliance on any single entity, enhancing network stability and resilience.

Security Audits and Formal Verification. Hedera engages third-party security firms to audit critical components of the network, ensuring robust security standards. While a full audit of the entire network has not been conducted in a single instance, Hedera continuously subjects key elements to formal verification and penetration testing to preempt vulnerabilities.

Network Hardening and Decentralization Initiatives. Hedera is actively expanding its network decentralization, adding more Council members and preparing for community-run nodes. These efforts reduce centralization risks and strengthen network security, preventing single points of failure from disrupting consensus.

Performance and Stability Enhancements. Hedera continuously refines its protocol to optimize performance and scalability. Recent improvements include:

Gossip Protocol Enhancements to better handle sudden spikes in network activity.

Pipelining in Node Software, enabling parallel processing of signature verification, consensus ordering, and state updates, ensuring high throughput and efficiency.

Quantum Resistance Planning. While quantum computing threats remain a long-term risk, Hedera's Council and technical working groups are proactively exploring post-quantum cryptography solutions to ensure future security and resilience.

Regulatory Engagement and Compliance. To address regulatory risks, Hedera—along with the HBAR Foundation—actively engages with policymakers and regulators, promoting transparent operations and compliance with emerging digital asset regulations.

Through these ongoing improvements, Hedera continues to enhance network security, decentralization, and performance, reinforcing its role as a scalable and enterprise-grade distributed ledger technology (DLT).

J. PART J – INFORMATION ON THE SUSTAINABILITY INDICATORS IN RELATION TO ADVERSE IMPACT ON THE CLIMATE AND OTHER ENVIRONMENT-RELATED ADVERSE IMPACTS

Adverse impacts on climate and other environment-related adverse impacts.

J.1 Information on principal adverse impacts on the climate and other environment-related adverse impacts of the consensus mechanism

The HBAR token operates on the Hedera network, which utilizes a unique Hashgraph consensus algorithm based on Asynchronous Byzantine Fault Tolerance (aBFT). Unlike Proof-of-Work (PoW) or traditional Proof-of-Stake (PoS) systems, Hedera does not rely on mining or intensive computational staking mechanisms. Instead, it employs the "Gossip about Gossip" protocol and Virtual Voting to reach consensus, which are designed to enhance throughput and reduce redundant computation.

While Hedera's architecture is recognized for its low energy usage per transaction relative to PoW-based networks, it is important to note that this does not imply a net reduction of energy consumption or environmental impact in absolute terms. Rather, Hedera's consensus model is comparatively less burdensome in terms of energy use and therefore offers a relatively more sustainable framework.

In accordance with MiCA regulations on environmental and climate-related disclosures, Hedera has published data regarding its sustainability indicators. As of the latest reporting, Hedera's total estimated annual energy consumption is 82,133.21250 kWh, with 18.21% of this energy sourced from renewable resources. The network's Scope 2 emissions are calculated at approximately 100.59130 tCO_2e per year. Additionally, Hedera reports an energy intensity of approximately 0.000003 kWh per transaction and a GHG intensity of 0.00001 $kgCO_2e$ per transaction.

General information

S.1 Name *Name reported in field A.1*	LCX
S.2 Relevant legal entity identifier Identifier referred to in field A.2	529900SN07Z6RTX8R418
S.3 Name of the crypto-asset Name of the crypto-asset, as reported in field D.2	Hedera HBAR
S.4 Consensus Mechanism The consensus mechanism, as reported in field H.4	Hedera Hashgraph operates on a leaderless, aBFT-based consensus mechanism, providing a fast, fair, and secure alternative to traditional blockchain models. Unlike Proof-of-Stake systems that rely on leader selection or committee-based validation, Hedera's Hashgraph algorithm allows all nodes to participate in consensus collectively, ensuring equitable influence without centralization risks. Transactions achieve instant deterministic finality within seconds, making them irreversible and highly reliable. While HBAR can be staked to support network security, it does not function as a PoS mechanism where validators are selected based on stake. Instead, staking helps prevent Sybil attacks, reinforcing Hedera's scalability and enterprise-grade security while enabling high-speed, low-cost transactions.
S.5 Incentive Mechanisms and Applicable Fees Incentive mechanisms to secure transactions and any fees applicable, as reported in field H.5	Hedera's fixed-fee model ensures low, predictable transaction costs, making it efficient for users and enterprises. Unlike PoW or PoS blockchains, Hedera does not rely on mining rewards or inflationary staking incentives. Instead, transactions incur fixed HBAR fees, covering consensus, token transfers, and smart contracts, ensuring cost stability regardless of network congestion. All fees collected in HBAR are distributed to network nodes, incentivizing validators and ensuring network reliability without inflating the token supply. With a fixed total supply of 50 billion HBAR, the network remains resistant to inflation, reinforcing economic sustainability. Fees also serve as a safeguard against spam transactions, maintaining network efficiency and security while supporting long-term enterprise adoption and scalability.

S.6 Beginning of the period to which the disclosure relates	2024-03-08
S.7 End of the period to which the disclosure relates	2025-03-08
Mandatory key indicator on energy consumption	
S.8 Energy consumption Total amount of energy used for the validation of transactions and the maintenance of the integrity of the distributed ledger of transactions, expressed per calendar year	82133.21250 kWh per year
Sources and methodologies	
S.9 Energy consumption sources and Methodologies Sources and methodologies used in relation to the information reported in field S.8	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 regularly, based on data of the Digital Token Identifier Foundation. To determine the energy consumption of a token, the energy consumption of the network(s) binance_smart_chain, klaytn is calculated first. Based on the crypto asset's gas consumption per network, the share of the total consumption of the respective network that is assigned to this asset is defined.

J.2 Supplementary information on principal adverse impacts on the climate and other environment-related adverse impacts of the consensus mechanism

Supplementary key indicators on energy and GHG emissions

S.10 Renewable energy consumption Share of energy used generated from renewable sources, expressed as a percentage of the total amount of energy used per calendar year, for the validation of transactions and the maintenance of the integrity of the distributed ledger of transactions.	18.21% of the network's energy use comes from renewable sources.
S.11 Energy intensity Average amount of energy used per validated transaction	0.000003 kWh per transaction
S.12 Scope 1 DLT GHG emissions – Controlled Scope 1 GHG emissions per calendar year for the validation of transactions and the maintenance of the integrity of the distributed ledger of transactions	0.00 tCO2e per year
S.13 Scope 2 DLT GHG emissions – Purchased Scope 2 GHG emissions, expressed in tCO2e per calendar year for the validation of transactions and the maintenance of the integrity of the distributed ledger of transactions	100.59130 tCO2e per year
S.14 GHG intensity Average GHG emissions (scope 1 and scope 2) per validated transaction	0.00001 kgCO2e per transaction
Sources and methodologies	
S.15 Key energy sources and methodologies Sources and methodologies used in relation to the information reported in fields S.10 and S.11	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 the European Environment Agency (EEA) and thus determined.
S.16 Key GHG sources and methodologies Sources and methodologies used in relation to the information reported in fields S.12, S.13 and S.14	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 the European Environment Agency (EEA) and thus determined.