CRYPTO RISK METRICS
DON'T TRUST. VERIFY.

White paper drafted under the European Markets in Crypto-Assets Regulation (EU) 2023/1114 for FFG VMQPVH41W

Preamble

00. Table of Contents

01. Date of notification

This white paper was notified on 2026-07-09.

02. Statement in accordance with Article 6(3) of Regulation (EU) 2023/1114

This crypto-asset white paper has not been approved by any competent authority in any Member State of the European Union. The person seeking admission to trading of the crypto-asset is solely responsible for the content of this crypto-asset white paper.

03. Compliance statement in accordance with Article 6(6) of Regulation (EU) 2023/1114

This crypto-asset white paper complies with Title II of Regulation (EU) 2023/1114 of the European Parliament and of the Council 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. Statement in accordance with Article 6(5), points (a), (b), (c), of Regulation (EU) 2023/1114

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

05. Statement in accordance with Article 6(5), point (d), of Regulation (EU) 2023/1114

As defined in Article 3(9) of Regulation (EU) 2023/1114 of the European Parliament and of the Council of 31 May 2023 on Markets in Crypto-Assets – amending Regulations (EU) No 1093/2010 and (EU) No 1095/2010 and Directives 2013/36/EU and (EU) 2019/1937 – a utility token is "a type of crypto-asset that is only intended to provide access to a good or a service supplied by its issuer". This crypto-asset does not qualify as a utility token, as its intended use goes beyond providing access to a good or service supplied solely by the issuer.

06. Statement in accordance with Article 6(5), points (e) and (f), of Regulation (EU) 2023/1114

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 or the deposit guarantee schemes under Directive 2014/49/EU of the European Parliament and of the Council.

Summary

07. Warning in accordance with Article 6(7), second subparagraph, of Regulation (EU) 2023/1114

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 or any other offer document pursuant to Union or national law.

08. Characteristics of the crypto-asset

The GRT crypto-asset referred to in this white paper is a crypto-asset other than EMTs and ARTs and is implemented on the Ethereum network as a token under the ERC-20 token standard, according to the DTI FFG shown in section F.14, as of 2026-07-02. The crypto-asset that is the subject of this white paper is the GRT token with the contract address 0xc944e90c64b2c07662a292be6244bdf05cda44a7 and 18 decimals on the Ethereum network (source: https://etherscan.io/token/0xc944e90c64b2c07662a292be6244bdf05cda44a7, accessed 2026-06-10). The first activity of the crypto-asset can be viewed on 2020-12-13 (transaction hash: 0x079625b9f58a40f1948b396b7007d09ff4aa193d7ec798923910fc179294cab8, source: https://etherscan.io/tx/0x079625b9f58a40f1948b396b7007d09ff4aa193d7ec798923910fc179294cab8, accessed 2026-06-10).

The GRT token is additionally available on the Arbitrum One network with the contract address 0x9623063377ad1b27544c965ccd7342f7ea7e88c7 and 18 decimals, deployed on 2022-11-30 (source: https://arbiscan.io/tx/0x8465190df853c05bbdec00ba6b66139be0e5663fd5b740bdd464ad7409ce2100, accessed 2026-06-10). Investors should note that an earlier GRT token contract on Arbitrum One with the address 0x23a941036ae778ac51ab04cea08ed6e2fe103614, deployed on 2021-06-16 (source: https://arbiscan.io/tx/0x88c6294eb30a6bf96541f566106a9ae29176eb0494552d133c4be80abd790454, accessed 2026-06-10), has been migrated to the current Arbitrum One contract address; the block explorer marks the earlier contract as migrated (source: https://arbiscan.io/token/0x9623063377ad1b27544c965ccd7342f7ea7e88c7, accessed 2026-06-10). The GRT token does not have a fixed maximum supply. It was launched with an initial supply of 10,000,000,000 GRT, with a target of approximately 3% new issuance annually, partially offset by burning mechanisms (source: https://thegraph.com/docs/en/resources/tokenomics/, accessed 2026-06-10).

According to publicly available information, The Graph is a decentralised indexing and query protocol for blockchain data. It organises on-chain data into open application programming interfaces, called Subgraphs, which applications can query using the GraphQL query language, so that developers do not need to operate their own indexing servers (sources: https://thegraph.com/docs/en/resources/tokenomics/, accessed 2026-06-10).

The GRT token is used within The Graph Network to coordinate the participants who provide and consume data services: Indexers stake GRT to operate indexing nodes, Delegators delegate GRT to Indexers, Curators signal GRT on Subgraphs and developers pay query fees in GRT (source: https://thegraph.com/docs/en/resources/tokenomics/, accessed 2026-06-10). The token's functionality is described in section F.2.

The crypto-asset does not grant any legally enforceable or contractual rights or obligations to its holders or purchasers. Any functionalities accessible through the underlying technology are purely technical or operational in nature and do not confer rights comparable to ownership, profit participation, governance, or similar entitlements known from traditional financial instruments.

09. Information about the quality and quantity of goods or services to which the utility tokens give access and restrictions on the transferability

As defined in Article 3(9) of Regulation (EU) 2023/1114 of the European Parliament and of the Council of 31 May 2023 on Markets in Crypto-Assets – amending Regulations (EU) No 1093/2010 and (EU) No 1095/2010 and Directives 2013/36/EU and (EU) 2019/1937 – a utility token is “a type of

crypto-asset that is only intended to provide access to a good or a service supplied by its issuer". This crypto-asset does not qualify as a utility token, as its intended use goes beyond providing access to a good or a service supplied solely by the issuer.

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

Crypto Risk Metrics GmbH is seeking admission to trading on the Payward Global Solutions LTD ("Kraken") platform in the European Union in accordance with Article 5 of Regulation (EU) 2023/1114 of the European Parliament and of the Council of 31 May 2023 on Markets in Crypto-Assets, and amending Regulations (EU) No 1093/2010 and (EU) No 1095/2010 and Directives 2013/36/EU and (EU) 2019/1937. The admission to trading is not accompanied by a public offer of the crypto-asset.

Part A – Information about the offeror or the person seeking admission to trading

A.1 Name

Crypto Risk Metrics GmbH is the person seeking admission to trading.

A.2 Legal form

The legal form of Crypto Risk Metrics GmbH is 2HBR, which corresponds to "Gesellschaft mit beschränkter Haftung".

A.3 Registered address

The registered address of Crypto Risk Metrics GmbH is Lange Reihe 73, 20099 Hamburg,

Germany,

DE-HH

A.4 Head office

The head office is identical to the registered address.

A.5 Registration date

Crypto Risk Metrics GmbH was registered on 2018-12-03.

A.6 Legal entity identifier

The Legal Entity Identifier (LEI) of Crypto Risk Metrics GmbH is 39120077M9TG0O1FE242.

A.7 Another identifier required pursuant to applicable national law

The national identifier of Crypto Risk Metrics GmbH is HRB 154488.

A.8 Contact telephone number

+4915144974120

A.9 E-mail address

info@crypto-risk-metrics.com

A.10 Response time (Days)

Crypto Risk Metrics GmbH will respond to investor enquiries within 30 calendar days.

A.11 Parent company

Crypto Risk Metrics GmbH has no parent company.

A.12 Members of the management body

Identity	Function	Business Address
Tim Zölitz	Chairman	Lange Reihe 73, 20099 Hamburg, Germany

A.13 Business activity

Crypto Risk Metrics GmbH is a technical service provider that supports regulated entities in fulfilling their regulatory requirements. Among other services, Crypto Risk Metrics GmbH acts as a data provider for ESG data under Article 66(5). In light of the requirements set out in Articles 4(7), 5(4) and 66(3) of Regulation (EU) 2023/1114 of the European Parliament and of the Council of 31 May 2023 on Markets in Crypto-Assets, and amending Regulations (EU) No 1093/2010 and (EU) No 1095/2010 and Directives 2013/36/EU and (EU) 2019/1937, Crypto Risk Metrics GmbH aims to provide central services for crypto-asset white papers.

A.14 Parent company business activity

Crypto Risk Metrics GmbH does not have a parent company. Accordingly, no business activity of a parent company is to be reported in this section.

A.15 Newly established

Crypto Risk Metrics GmbH has been established since 2018-12-03 and is therefore not newly established (i.e. more than three years).

A.16 Financial condition for the past three years

Crypto Risk Metrics GmbH, founded in 2018 and based in Hamburg (HRB 154488), has undergone several strategic shifts in its business focus since incorporation. Due to these changes in business model and operational direction over time, the financial figures from earlier years are only comparable to a limited extent with the company's current commercial activities. The present business model – centred on regulatory technology and risk analytics in the context of the MiCA framework – has been developed progressively and can realistically be considered fully operational since approximately 2024.

The company's financial trajectory over the past three years reflects the transition from exploratory development towards market-ready product delivery. Profit or loss after tax for the last three financial years is as follows:

2024 (unaudited): loss of EUR 50,891.81

2023 (unaudited): loss of EUR 27,665.32

2022: profit of EUR 104,283.00

The profit in 2022 resulted primarily from legacy consulting activities, which were discontinued as part of the company's repositioning.

The losses in 2023 and 2024 resulted from strategic investments in the development of proprietary software infrastructure, regulatory frameworks, and compliance technology for the MiCA ecosystem. During those periods, no substantial commercial revenues were expected, as resources were directed towards preparing the platform for market entry in a regulated environment.

A fundamental repositioning of the company occurred in 2023 and especially in 2024, when the focus shifted towards providing risk management, regulatory reporting, and supervisory compliance solutions for financial institutions and crypto-asset service providers. This marked a material shift in business operations and monetisation strategy.

Based on preliminary unaudited management information for the financial year 2025, revenues are expected to have exceeded EUR 800,000, while preliminary net profit is expected to exceed EUR 100,000.

These figures are not audited and are not based on a finalised annual financial statement. Accordingly, they remain subject to finalisation and may differ from the figures ultimately reported in the annual financial statements.

With the regulatory environment now taking shape and the platform commercially validated, it is assumed that the effects of the strategic developments will continue to materialise in 2026. The company foresees further scalability of its technology and growing market demand for regulatory compliance tools in the European crypto-asset sector.

No public subsidies or governmental grants have been received to date; all operations have been financed through shareholder contributions and internally generated resources. Crypto Risk Metrics has never accepted any payments in tokens from projects it has worked with and – due to its internal Conflicts of Interest Policy – never will.

A.17 Financial condition since registration

Not applicable. The company has been established for more than three years and its financial condition over the past three years is provided in Part A.16 above.

Part B – Information about the issuer, if different from the offeror or person seeking admission to trading

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

Yes, the issuer is different from the person seeking admission to trading.

B.2 Name

The Graph Foundation

B.3 Legal form

Could not be found.

B.4 Registered address

The registered address of The Graph Foundation is c/o Zedra Cayman Management Services Limited, PO Box 10176, Governor's Square, 23 Lime Tree Bay Ave., George Town, Grand Cayman, KY1-1002,

Cayman Islands,

KY1

B.5 Head office

Could not be found while drafting this white paper.

Not applicable.

Not applicable.

B.6 Registration date

The exact registration date of The Graph Foundation could not be determined from publicly available information. However, The Graph Foundation was publicly announced by the project on 6 October 2020 (source: https://thegraph.com/blog/announcing-the-graph-foundation/, accessed 2026-07-02).

B.7 Legal entity identifier

The Graph Foundation has no Legal Entity Identifier (LEI).

B.8 Another identifier required pursuant to applicable national law

Could not be found.

B.9 Parent company

No parent company of The Graph Foundation can be identified.

B.10 Members of the management body

Identity	Function	Business Address
Could not be found	Not applicable	Not applicable

B.11 Business activity

The Graph Foundation supports the development of blockchain software and decentralised technology infrastructure. Its activities include the development and provision of software, APIs, distributed ledger technology platforms, cloud-based software services, cryptographic software, blockchain infrastructure, data management solutions, and related technology consulting services.

B.12 Parent company business activity

Not applicable.

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

Not applicable since Crypto Risk Metrics GmbH is not a trading platform.

C.2 Legal form

Not applicable since Crypto Risk Metrics GmbH is not a trading platform.

C.3 Registered address

Not applicable since Crypto Risk Metrics GmbH is not a trading platform.

C.4 Head office

Not applicable since Crypto Risk Metrics GmbH is not a trading platform.

C.5 Registration date

Not applicable since Crypto Risk Metrics GmbH is not a trading platform.

C.6 Legal entity identifier

Not applicable since Crypto Risk Metrics GmbH is not a trading platform.

C.7 Another identifier required pursuant to applicable national law

Not applicable since Crypto Risk Metrics GmbH is not a trading platform.

C.8 Parent company

Not applicable since Crypto Risk Metrics GmbH is not a trading platform.

C.9 Reason for crypto-asset white paper preparation

Not applicable since Crypto Risk Metrics GmbH is not a trading platform.

C.10 Members of the management body

Not applicable since Crypto Risk Metrics GmbH is not a trading platform.

C.11 Operator business activity

Not applicable since Crypto Risk Metrics GmbH is not a trading platform.

C.12 Parent company business activity

Not applicable since Crypto Risk Metrics GmbH is not a trading platform.

C.13 Other persons drawing up the crypto-asset white paper according to Article 6(1), second subparagraph, of Regulation (EU) 2023/1114

Not applicable since Crypto Risk Metrics GmbH is not a trading platform.

C.14 Reason for drawing the white paper by persons referred to in Article 6(1), second subparagraph, of Regulation (EU) 2023/1114

Not applicable since Crypto Risk Metrics GmbH is not a trading platform.

Part D – Information about the crypto-asset project

D.1 Crypto-asset project name

Long Name: "Graph Token", Short Name: "GRT" according to the Digital Token Identifier Foundation (www.dtif.org, DTI see F.13, FFG DTI see F.14 as of 2026-07-02).

D.2 Crypto-assets name

Long Name: "Graph Token" according to the Digital Token Identifier Foundation (www.dtif.org, DTI see F.13, FFG DTI see F.14 as of 2026-07-02).

D.3 Abbreviation

Short Name: "GRT" according to the Digital Token Identifier Foundation (www.dtif.org, DTI see F.13, FFG DTI see F.14 as of 2026-07-02).

D.4 Crypto-asset project description

According to publicly available information (sources: https://thegraph.com/docs/en/resources/tokenomics/; https://thegraph.com/blog/technical-roadmap/, accessed 2026-07-02), The Graph is a decentralised protocol and blockchain data infrastructure designed to index, process and provide access to blockchain data across multiple distributed ledger networks. Its stated objective is to make on-chain data readily accessible to applications without reliance on centralised indexing infrastructure. The Graph provides a suite of data services, including Subgraphs for structured application programming interfaces (APIs), Substreams for high-throughput streaming of blockchain data and Amp for verifiable, enterprise-oriented blockchain datasets. These services are intended to support a range of use cases including decentralised applications, analytics and enterprise data processing.

Data is organised into open application programming interfaces, called Subgraphs, which applications can query using the GraphQL query language. The network is operated by independent participants. Indexers operate indexing infrastructure, Curators identify and signal Subgraphs for indexing, Delegators support Indexers by delegating stake, and developers and other consumers query indexed blockchain data through the network.

The project does not involve the granting of ownership, profit-participation rights or legal claims against the Graph protocol or its contributors. Instead, it centres on the creation of decentralised infrastructure for indexing, processing and distributing blockchain data, within which the GRT crypto-asset performs protocol-related functions described elsewhere in this white paper. The long-term evolution of the Graph system, including the scope of available features, governance arrangements, participant incentive mechanisms and the operational continuity of the infrastructure, may vary based on technical, economic and regulatory considerations. All future developments remain subject to change.

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

Name of person	Type of person	Business address of person	Domicile of company
The Graph Foundation	Other person involved in implementation	c/o Zedra Cayman Management Services Limited, PO Box 10176, Governor's Square, 23 Lime Tree Bay Ave., George Town, Grand Cayman, KY1-1002, Cayman Islands	Cayman Islands
Edge & Node Ventures, Inc.	Other person involved in implementation	548 Market St PMB 91267, San Francisco, CA 94104	United States
Tegan Kline	Other person involved in implementation	548 Market St PMB 91267, San Francisco, CA 94104	United States
Yaniv Tal	Other person involved in implementation	Cannot be found	Cannot be found
Jannis Pohlmann	Other person involved in implementation	Cannot be found	Cannot be found
Brandon Ramirez	Other person involved in implementation	Cannot be found	Cannot be found

D.6 Utility Token Classification

As defined in Article 3(9) of Regulation (EU) 2023/1114 of the European Parliament and of the Council of 31 May 2023 on Markets in Crypto-Assets – amending Regulations (EU) No 1093/2010 and (EU) No 1095/2010 and Directives 2013/36/EU and (EU) 2019/1937 – a utility token is "a type of crypto-asset that is only intended to provide access to a good or a service supplied by its issuer". This crypto-asset does not qualify as a utility token, as its intended use goes beyond providing access to a good or a service supplied solely by the issuer.

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

As defined in Article 3(9) of Regulation (EU) 2023/1114 of the European Parliament and of the Council of 31 May 2023 on Markets in Crypto-Assets – amending Regulations (EU) No 1093/2010 and (EU) No 1095/2010 and Directives 2013/36/EU and (EU) 2019/1937 – a utility token is "a type of crypto-asset that is only intended to provide access to a good or a service supplied by its issuer". This crypto-asset does not qualify as a utility token, as its intended use goes beyond providing access to a good or a service supplied solely by the issuer.

D.8 Plans for the token

This section provides an overview of the historical developments related to the GRT crypto-asset and a description of planned or anticipated project milestones as publicly communicated. All forward-looking elements are subject to significant uncertainty. They do not constitute commitments, assurances, or guarantees, and may be modified, delayed, or discontinued at any time. The implementation of past milestones cannot be assumed to continue in the future, and future changes may have adverse effects for token holders.

There is a formally published roadmap for the GRT crypto-asset and The Graph protocol. Based on the official roadmap (sources: https://thegraph.com/blog/technical-roadmap/; https://thegraph.com/roadmap; accessed 2026-06-10), several protocol upgrades, ecosystem initiatives, and crypto-asset-related developments have been communicated that affect the evolution of the The Graph protocol and the role of the GRT crypto-asset.

Past milestones:

- Project Conception (July 2017): The Graph project was conceived by the founders of Graph Protocol, Inc., with full-time development commencing in December 2017.

- Seed Funding (28 January 2019): Graph Protocol announced a seed financing round of approximately USD 2,500,000 led by Multicoin Capital to support continued protocol development.

- Hosted Service Launch (January 2019): The Graph launched its hosted service, providing developers with early access to decentralised indexing functionality.

- The Graph Foundation Announcement (October 2020): The Graph Foundation was introduced as the ecosystem steward, while Graph Protocol, Inc. began its transition to Edge & Node Ventures, Inc.

- Public Token Sale (28 October 2020): The Graph Foundation completed the public sale of 400,000,000 GRT, representing approximately 4% of the initial supply, raising approximately USD 12,000,000.

- GRT Token Deployment (13 December 2020): The GRT token smart contract was deployed on the Ethereum network.

- Mainnet Launch (17 December 2020): The Graph Network launched its mainnet, enabling decentralised indexing and query services.

- Arbitrum One Token Deployment and Migration (16 June 2021 and 30 November 2022): GRT was initially deployed on Arbitrum One in June 2021 and later migrated to the current token contract deployed in November 2022.

- Protocol Transition to Arbitrum One (June 2023 to June 2024): Following Graph Improvement Proposal GIP-0031, the protocol entered the final phase of its migration to Arbitrum One in June

2023. According to the official documentation, protocol activity, including billing contracts for query payments, now operates on Arbitrum One.

- Hypergraph Developer Preview (July 2025): The Graph announced the Hypergraph developer preview, a framework intended to support interoperable applications combining public and private user-controlled data. The project also reported early developer adoption across applications including AI-assisted collaboration tools, personal health-data management and decentralised productivity software.

- Horizon Upgrade (December 2025): The Horizon upgrade was introduced on mainnet, transitioning the protocol towards a modular architecture designed to support multiple decentralised data services.

- Roadmap Deliveries Phase I (Q1 2026): According to the official roadmap, Q1 2026 was scheduled for the Horizon-based Subgraph Service mainnet rollout, the Rewards Eligibility Oracle, expanded execution-client support, Token API latency improvements, and the private Tycho MVP. Completion of these items has not been independently confirmed.

- x402 Gateway Payments (12 May 2026): The Graph Gateway began supporting x402 payments, enabling developers and agents to query Subgraphs on The Graph Network on a pay-per-request basis in USDC on the Base network, without an API key, account or dashboard.

Future milestones:

- Indexing Payments and Service Expansion (Q3 2026): The roadmap describes planned introduction of Decentralised Indexing Payments (DIPs) for the Subgraph service, a network-first chain integration process, research into an experimental JSON-RPC data service, rollout of the Substreams Data Service Mainnet and Provider Selection Oracle, Token API real-time token pricing with DEX and chain expansion, and the planned mainnet rollout of liquid staking.

- Advanced Data Services and Infrastructure (Q4 2026): The roadmap describes planned deployment of liquid staking on Morpho, Amp-powered Subgraphs, the Substreams probabilistic verifier for data integrity and service availability, the Substreams Rewards Eligibility Oracle testnet and mainnet, development of the Amp SQL platform, release of verifiable raw blockchain data, the Amp Horizon-based data service testnet and mainnet, and Decentralised Indexing Payments (DIPs) for the Amp service.

Note: All future milestones are subject to significant uncertainty, including but not limited to technical feasibility, regulatory developments, market adoption, and community governance decisions. The project may modify, delay, or discontinue any of these initiatives at any time. Past implementation or performance outcomes do not constitute an indication of future results, and any such changes may materially affect the characteristics, availability, or perceived value of the GRT crypto-asset for its holders.

D.9 Resource allocation

Based on information from various third-party and industry sources, it is reported that the crypto-asset project associated with the GRT token has conducted multiple funding rounds involving seed financing, private SAFT financing, strategic token sales and a public token sale.

According to publicly referenced information, Graph Protocol, Inc. (now Edge & Node Ventures, Inc.), the principal development company behind The Graph, raised approximately USD 2,500,000 in a seed financing round announced in January 2019. The round was led by Multicoin Capital and formed part of a broader private fundraising process conducted between April 2018 and June 2020 involving more than 60 accredited backers. Public sources further indicate that, in June 2020, the company completed a SAFT financing round raising approximately USD 5,000,000 from investors including Framework, ParaFi Capital, Coinbase Ventures, Digital Currency Group, CoinIX, Tally Capital, Multicoin Capital and DTC Capital. On this basis, the aggregate reported private financing raised by the development company amounts to approximately USD 7,500,000.

Further public reporting indicates that, in October 2020, The Graph Foundation conducted two token sales in connection with the launch of the GRT network. A strategic sale allocated 200,000,000 GRT, representing approximately 2% of the initial token supply, to Indexers and strategic community participants at a reported price of USD 0.026 per token, generating approximately USD 5,200,000. During the same period, a public token sale allocated 400,000,000 GRT, representing approximately 4% of the initial supply, at a reported price of USD 0.03 per token, raising approximately USD 12,000,000 from approximately 4,500 purchasers outside the United States.

According to publicly available information, the aggregate reported funding associated with the development of The Graph therefore amounts to approximately USD 24,700,000, comprising the reported private financing rounds together with the strategic and public token sales.

However, all such information is derived exclusively from public announcements, portfolio disclosures, press releases, transparency reports, and third-party publications. The issuer, foundation, or entities associated with the GRT crypto-asset have not independently confirmed the occurrence, precise amounts, valuation, legal structure, or contractual terms of these reported financing rounds. As a result, the referenced investment amounts, investor participation, and any implied cumulative funding figures cannot be independently verified and should be considered indicative only.

D.10 Planned use of collected funds or crypto-assets

Not applicable, as this white paper serves the purpose of admission to trading and is not associated with any fundraising activity for the crypto-asset project.

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

Crypto Risk Metrics GmbH is the person seeking admission to trading.

E.2 Reasons for public offer or admission to trading

The purpose of seeking admission to trading is to enable the crypto-asset to be listed on a regulated platform in accordance with the applicable provisions of Regulation (EU) 2023/1114 and Commission Implementing Regulation (EU) 2024/2984. The white paper has been drawn up to comply with the transparency requirements applicable to trading venues.

E.3 Fundraising target

Not applicable, as this white paper is written to seek admission to trading, not for the initial offer to the public.

E.4 Minimum subscription goals

Not applicable, as this white paper is written to seek admission to trading, not for the initial offer to the public.

E.5 Maximum subscription goals

Not applicable, as this white paper is written to seek admission to trading, not for the initial offer to the public.

E.6 Oversubscription acceptance

Not applicable, as this white paper is written to seek admission to trading, not for the initial offer to the public.

E.7 Oversubscription allocation

Not applicable, as this white paper is written to seek admission to trading, not for the initial offer to the public.

E.8 Issue price

Not applicable, as this white paper is written to seek admission to trading, not for the initial offer to the public.

E.9 Official currency or any other crypto-assets determining the issue price

Not applicable, as this white paper is written to seek admission to trading, not for the initial offer to the public.

E.10 Subscription fee

Not applicable, as this white paper is written to seek admission to trading, not for the initial offer to the public.

E.11 Offer price determination method

Not applicable, as this white paper is written to seek admission to trading, not for the initial offer to the public.

E.12 Total number of offered/traded crypto-assets

The initial supply of the crypto-asset was 10,000,000,000 GRT. According to publicly available information, the protocol targets an annual issuance rate of approximately 3% of the total supply,

with newly issued GRT distributed to Indexers as indexing rewards. The issuance mechanism is subject to governance decisions and may be modified in the future.

The protocol also incorporates mechanisms that reduce the total supply. A 0.5% delegation tax, a 1% curation tax and 1% of query fees are burned. In addition, GRT may be permanently removed from circulation through slashing-related burns. Publicly available information indicates that approximately 1% of the total supply has historically been burned on an annual basis. As at 2026-07-02, the reported total supply was 10,882,658,081 GRT.

Investors should note that changes in the total supply, whether resulting from new issuance or token burning, may affect the market value, liquidity and trading characteristics of the crypto-asset.

E.13 Targeted holders

The admission of the crypto-asset to trading is open to all types of investors.

E.14 Holder restrictions

Holder restrictions are subject to the rules applicable to the crypto-asset service provider, as well as any additional restrictions that provider may impose.

E.15 Reimbursement notice

Not applicable, as this white paper is written to seek admission to trading, not for the initial offer to the public.

E.16 Refund mechanism

Not applicable, as this white paper is written to seek admission to trading, not for the initial offer to the public.

E.17 Refund timeline

Not applicable, as this white paper is written to seek admission to trading, not for the initial offer to the public.

E.18 Offer phases

Not applicable, as this white paper is written to seek admission to trading, not for the initial offer to the public.

E.19 Early purchase discount

Not applicable, as this white paper is written to seek admission to trading, not for the initial offer to the public.

E.20 Time-limited offer

Not applicable, as this white paper is written to seek admission to trading, not for the initial offer to the public.

E.21 Subscription period beginning

Not applicable, as this white paper is written to seek admission to trading, not for the initial offer to the public.

E.22 Subscription period end

Not applicable, as this white paper is written to seek admission to trading, not for the initial offer to the public.

E.23 Safeguarding arrangements for offered funds/crypto-assets

Not applicable, as this white paper is written to seek admission to trading, not for the initial offer to the public.

E.24 Payment methods for crypto-asset purchase

Not applicable, as this white paper is written to seek admission to trading, not for the initial offer to the public.

E.25 Value transfer methods for reimbursement

Not applicable, as this white paper is written to seek admission to trading, not for the initial offer to the public.

E.26 Right of withdrawal

Not applicable, as this white paper is written to seek admission to trading, not for the initial offer to the public.

E.27 Transfer of purchased crypto-assets

Not applicable, as this white paper is written to seek admission to trading, not for the initial offer to the public.

E.28 Transfer time schedule

Not applicable, as this white paper is written to seek admission to trading, not for the initial offer to the public.

E.29 Purchaser's technical requirements

Not applicable, as this white paper is written to seek admission to trading, not for the initial offer to the public.

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

Not applicable, as this white paper is written to seek admission to trading, not for the initial offer to the public.

E.31 CASP identifier

Not applicable, as this white paper is written to seek admission to trading, not for the initial offer to the public.

E.32 Placement form

Not applicable, as this white paper is written to seek admission to trading, not for the initial offer to the public.

E.33 Trading platforms name

The admission to trading is sought on Payward Global Solutions LTD ("Kraken").

E.34 Trading platforms Market identifier code (MIC)

The Market Identifier Code (MIC) of Payward Global Solutions LTD ("Kraken") is PGSL.

E.35 Trading platforms access

The token is intended to be listed on the trading platform operated by Payward Global Solutions LTD ("Kraken"). Access to this platform depends on regional availability and user eligibility under Kraken's terms and conditions. Investors should consult Kraken's official documentation to determine whether they meet the requirements for account creation and token trading.

E.36 Involved costs

The costs involved in accessing the trading platform depend on the specific fee structure and terms of the respective crypto-asset service provider. These may include trading fees, deposit or withdrawal charges, and network-related transaction fees. Investors are advised to consult the applicable fee schedule of the chosen platform before engaging in trading activities.

E.37 Offer expenses

Not applicable, as this white paper is written to seek admission to trading, not for the initial offer to the public.

E.38 Conflicts of interest

MiCA-compliant crypto-asset service providers shall have strong measures in place in order to manage conflicts of interest. Due to the broad audience this white paper addresses, potential investors should always check the conflicts-of-interest policy of their respective counterparty.

Crypto Risk Metrics GmbH has established, implemented, and documented comprehensive internal policies and procedures for the identification, prevention, management, and documentation of conflicts of interest in accordance with applicable regulatory requirements. These internal measures are actively applied within the organisation. For the purposes of this specific assessment and the crypto-asset covered by this white paper, a token-specific review has been conducted by Crypto Risk Metrics GmbH. Based on this individual review, no conflicts of interest relevant to this crypto-asset have been identified at the time of preparation of this white paper.

E.39 Applicable law

Not applicable, as this white paper is written to seek admission to trading, not for the initial offer to the public.

E.40 Competent court

Not applicable, as this white paper is written to seek admission to trading, not for the initial offer to the public.

Part F – Information about the crypto-assets

F.1 Crypto-asset type

The crypto-asset described in the white paper is classified as a crypto-asset under the Markets in Crypto-Assets Regulation (MiCA) but is neither classified as an electronic money token (EMT) nor an asset-referenced token (ART). It is a digital representation of value that can be stored and transferred using distributed ledger technology (DLT) or similar technology, without embodying or conferring any rights to its holder. The crypto-asset does not aim to maintain a stable value by referencing an official currency, a basket of assets, or any other underlying rights. Instead, its valuation is entirely market-driven, based on supply and demand dynamics, and it is not subject to any stabilisation mechanism. It is neither pegged to any fiat currency nor backed by any external assets, which distinguishes it from EMTs and ARTs. Furthermore, the crypto-asset is not categorised as a financial instrument, deposit, insurance product, pension product, or any other regulated financial product under EU law. It does not grant financial rights, voting rights, or any contractual claims to its holders, and therefore remains outside the scope of regulatory frameworks applicable to traditional financial instruments.

F.2 Crypto-asset functionality

According to publicly available information (source: https://thegraph.com/docs/en/resources/tokenomics/, accessed 2026-07-02), GRT is a crypto-asset implemented under the ERC-20 token standard on the Ethereum network and is also available on the Arbitrum One network. It has been transferable since the launch of The Graph Network mainnet on 2020-12-17. GRT functions as the protocol token of The Graph and is intended to coordinate and incentivise interactions between participants that provide, process and consume blockchain data within the protocol. The protocol documentation describes four principal technical functions of GRT: staking, delegation, curation and the payment of query fees.

GRT functions as a technical component within The Graph protocol and its associated data-indexing infrastructure. Indexers self-stake GRT in order to operate indexing infrastructure and provide blockchain data services through the protocol. Public documentation states that Indexers are required to self-stake at least 100,000 GRT and may earn query fees and indexing rewards in return for indexing activities. Staked GRT is subject to slashing under certain circumstances specified by the protocol, including malicious or irresponsible behaviour by Indexers.

GRT may also be delegated by token holders to Indexers. Delegators receive a share of the relevant Indexer's query fees and indexing rewards, subject to the Indexer's individual reward parameters. Public documentation further states that a delegation tax of 0.5% is burned whenever GRT is delegated and that delegated GRT is subject to an unbonding period of approximately 26 days before withdrawal becomes available.

Within the curation mechanism, Curators signal GRT on Subgraphs in order to indicate which blockchain datasets should be indexed by the network. In return, Curators may receive a share of future query fees generated by the relevant Subgraphs. Public documentation states that a 1% curation tax is burned whenever GRT is used to curate a new Subgraph.

GRT is also used to pay query fees for blockchain data requested through The Graph Network. Developers and other users pay for queries in GRT, after which the protocol distributes the resulting query fees among eligible network participants according to the applicable protocol rules. Public documentation states that 1% of query fees is burned by the protocol.

The GRT token does not confer ownership, profit participation, governance rights over the issuer or any related entity in a corporate-law sense, or any legally enforceable economic entitlement. All functionalities are technical in nature and relate exclusively to interactions within The Graph protocol environment. The long-term evolution of the protocol, including possible future token functionality described in public technical roadmaps, remains subject to technical implementation, protocol decisions, economic considerations and regulatory developments. Consequently, no assurance can be given that any planned or proposed future functionality will be implemented or maintained.

F.3 Planned application of functionalities

Future milestones:

- Indexing Payments and Service Expansion (Q3 2026): The roadmap describes planned introduction of Decentralised Indexing Payments (DIPs) for the Subgraph service, a network-first chain integration process, research into an experimental JSON-RPC data service, rollout of the Substreams Data Service Mainnet and Provider Selection Oracle, Token API real-time token pricing with DEX and chain expansion, and the planned mainnet rollout of liquid staking.

- Advanced Data Services and Infrastructure (Q4 2026): The roadmap describes planned deployment of liquid staking on Morpho, Amp-powered Subgraphs, the Substreams probabilistic verifier for data integrity and service availability, the Substreams Rewards Eligibility Oracle testnet and mainnet, development of the Amp SQL platform, release of verifiable raw blockchain data, the Amp Horizon-based data service testnet and mainnet, and Decentralised Indexing Payments (DIPs) for the Amp service.

Note: All future milestones are subject to significant uncertainty, including but not limited to technical feasibility, regulatory developments, market adoption, and community governance decisions. The project may modify, delay, or discontinue any of these initiatives at any time. Past implementation or performance outcomes do not constitute an indication of future results, and any such changes may materially affect the characteristics, availability, or perceived value of the GRT crypto-asset for its holders.

A description of the characteristics of the crypto asset, including the data necessary for classification of the crypto-asset white paper in the register referred to in Article 109 of Regulation (EU) 2023/1114, as specified in accordance with paragraph 8 of that Article

F.4 Type of crypto-asset white paper

The white paper type is "Other crypto-assets" (i.e. OTHR).

F.5 The type of submission

The type of submission is NEWT, which stands for "New".

F.6 Crypto-asset characteristics

The crypto-asset referred to herein is a crypto-asset other than EMTs and ARTs, and is available on multiple networks. The crypto-asset is fungible up to 18 digits after the decimal point on Ethereum and Arbitrum One. The crypto-asset constitutes a digital representation recorded on distributed-ledger technology and does not confer ownership, governance, profit participation, or any other legally enforceable rights. Any functionalities associated with the token are limited to potential technical features within the relevant platform environment. These functionalities do not represent contractual entitlements and may depend on future development decisions, technical design choices, and operational conditions. The crypto-asset does not embody intrinsic economic value; instead, its value, if any, is determined exclusively by market dynamics such as supply, demand, and liquidity in secondary markets.

F.7 Commercial name or trading name

Long Name: "Graph Token" according to the Digital Token Identifier Foundation (www.dtif.org, DTI see F.13, FFG DTI see F.14 as of 2026-07-02).

F.8 Website of the issuer

https://thegraph.com

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

2026-08-10

F.10 Publication date

2026-08-10

F.11 Any other services provided by the issuer

No such services are currently known to be provided by the issuer. However, it cannot be excluded that additional services exist or may be offered in the future outside the scope of Regulation (EU) 2023/1114.

F.12 Language or languages of the crypto-asset white paper

EN

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

1K8HT8SZW, 7744P2WPH, ZLZ8X4SKJ

F.14 Functionally fungible group digital token identifier

VMQPVH41W

F.15 Voluntary data flag

This white paper has been submitted on a mandatory basis under Regulation (EU) 2023/1114.

F.16 Personal data flag

Yes, this white paper contains personal data as defined in Regulation (EU) 2016/679 (the GDPR).

F.17 LEI eligibility

The issuer is eligible for a Legal Entity Identifier (LEI).

F.18 Home Member State

Germany

F.19 Host Member States

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

Part G – Information on the rights and obligations attached to the crypto-assets

G.1 Purchaser rights and obligations

The crypto-asset does not grant any legally enforceable or contractual rights or obligations to its holders or purchasers. Any functionalities accessible through the underlying technology are of a purely technical or operational nature and do not constitute rights comparable to ownership, profit participation, governance, or similar entitlements known from traditional financial instruments. Accordingly, holders do not acquire any legally enforceable claim against the issuer of the crypto-asset or any third party.

G.2 Exercise of rights and obligations

As the crypto-asset does not confer any legally enforceable rights or obligations, there are no applicable procedures or conditions for their exercise. Any interaction or functionality that may be available within the project's technical infrastructure – such as participation mechanisms or protocol-level features – serves operational purposes only and does not create, evidence, or constitute any contractual or statutory entitlement.

G.3 Conditions for modifications of rights and obligations

As the crypto-asset does not confer any legally enforceable rights or obligations, there are no conditions or mechanisms for modifying such rights or obligations. Adjustments to the technical protocol, smart contract logic, or related systems may occur in the ordinary course of development or maintenance. Such changes do not alter the legal position of holders, as no contractual rights exist and no rights arise under applicable law or regulation. Holders should not interpret technical updates or governance-related changes as amendments to legally binding entitlements.

G.4 Future public offers

Information on the future offers to the public of crypto-assets was not available at the time of writing this white paper (2026-07-03).

G.5 Issuer retained crypto-assets

According to the issuer's published initial allocation, The Graph Foundation was allocated approximately 20% of the initial supply of 10,000,000,000 GRT, that is approximately 2,000,000,000 GRT, calculated on the basis of the initial supply at the token generation event in 2020-12 (source: https://thegraph.com/blog/announcing-the-graphs-grt-sale/, accessed 2026-06-10). The extent to which these historical allocations are still held by the issuer cannot be independently verified.

According to the issuer's published disclosures, the foundation's allocation is subject to a ten-year unlocking schedule, with approximately 2.1% of the initial supply unlocked at launch to support initial grants and approximately 2.5% unlocked at launch for distribution to ecosystem partners (source: https://thegraph.com/blog/announcing-the-graphs-grt-sale/, accessed 2026-06-10). No more recent breakdown of the foundation's current holdings has been identified, and no publicly disclosed blockchain addresses have been identified that can be independently and conclusively attributed to the issuer for the purposes of verifying current balances.

The token distribution can be traced on-chain on Ethereum: https://etherscan.io/token/0xc944e90c64b2c07662a292be6244bdf05cda44a7#balances. The investor must be aware that a public address cannot necessarily be assigned to a single person or entity, which limits the ability to determine exact economic influence or future actions.

The information presented in this section is based on the issuer's own published disclosures and publicly available information, should be considered indicative only, and changes in the issuer's holdings can negatively impact the investor.

G.6 Utility token classification

No – the crypto-asset project does not concern utility tokens as defined in Article 3(9) of Regulation (EU) 2023/1114.

G.7 Key features of goods/services of utility tokens

Not applicable, as the crypto-asset described herein is not a utility token.

G.8 Utility tokens redemption

Not applicable, as the crypto-asset described herein is not a utility token.

G.9 Non-trading request

The admission to trading is sought.

G.10 Crypto-assets purchase or sale modalities

Not applicable, as this white paper is written to seek admission to trading, not for the initial offer to the public.

G.11 Crypto-assets transfer restrictions

The crypto-assets themselves are not subject to any technical or contractual transfer restrictions and are generally freely transferable. However, crypto-asset service providers may impose restrictions on buyers or sellers in accordance with applicable laws, internal policies or contractual terms agreed with their clients.

G.12 Supply adjustment protocols

No – there are no fixed protocols that can increase or decrease the supply of the crypto-asset in response to changes in demand as of 2026-07-03.

However, it is possible to decrease the circulating supply by transferring crypto-assets to so-called "burn addresses". These are addresses from which the tokens are no longer intended to be transferred or accessed, effectively removing them from circulation.

G.13 Supply adjustment mechanisms

Not applicable.

G.14 Token value protection schemes

No – the crypto-asset does not have any mechanisms or schemes in place that aim to stabilise or protect its market value. Its value is determined solely by market supply and demand, and may be subject to significant volatility.

G.15 Token value protection schemes description

Not applicable, as the crypto-asset in scope does not have any value protection scheme in place.

G.16 Compensation schemes

No – the crypto-asset does not have any compensation scheme.

G.17 Compensation schemes description

Not applicable, as the crypto-asset in scope does not have any compensation scheme in place.

G.18 Applicable law

This white paper is submitted in the context of an application for admission to trading on a trading platform established in the European Union. Accordingly, this white paper shall be governed by the laws of the Federal Republic of Germany.

G.19 Competent court

Any disputes arising in relation to this white paper or the admission to trading may be brought before the competent courts in Hamburg, Germany.

Part H – information on the underlying technology

H.1 Distributed ledger technology (DLT)

The crypto-asset in scope is implemented on the Arbitrum and Ethereum networks following the standards described below.

H.2 Protocols and technical standards

The crypto-asset that is the subject of this white paper is available on multiple DLT networks. These include: Arbitrum and Ethereum. In general, when evaluating crypto-assets, all implementations across different networks must always be taken into account, as spillover effects can be adverse for investors.

The following applies to Arbitrum:

The Arbitrum Rollup network operates as a Layer 2 protocol suite built on Ethereum and implemented through the Arbitrum Nitro technology stack. The following description is based on publicly available technical documentation and open source specifications and is provided for informational purposes only; protocol parameters, implementations, and governance processes may change over time.

1. Core protocol architecture (Nitro stack and rollup design)

- Arbitrum Nitro stack: The protocol is implemented through the Arbitrum Nitro architecture, which defines the execution and system components used to process Layer 2 transactions and interface with Ethereum.

- Optimistic rollup model (Arbitrum Rollup): In the rollup configuration (for example, Arbitrum One), transaction data is posted to Ethereum as the parent chain, and the protocol relies on an optimistic execution model with dispute resolution on Ethereum for correctness enforcement.

- Data availability variant (AnyTrust): Arbitrum also defines an AnyTrust configuration (for example, Arbitrum Nova) in which transaction data availability is provided by a Data Availability Committee (DAC) using signed certificates, with fallback behaviour that can revert to parent chain posting when required by the protocol configuration.

2. Dispute resolution and validation protocol standards

- BoLD dispute protocol: The BoLD (Bounded Liquidity Delay) protocol is specified as a dispute resolution mechanism intended to enable permissionless validation in an optimistic rollup setting.

- On-chain adjudication on the parent chain: Dispute resolution logic is implemented through smart contracts on the parent chain, with participants interacting with those contracts to progress and adjudicate disputes.

- Commitments and proofs: Public documentation describes asserted state commitments and dispute steps that use cryptographic commitments and proof constructions (including Merkle-based commitments and one-step style execution proofs) for resolving contested execution claims on the parent chain.

3. Governance and formal change process (AIP framework)

- Arbitrum Improvement Proposals (AIPs): Formal changes to governance rules, core parameters, and other DAO-controlled actions follow the AIP framework, including an initial forum and Snapshot based temperature check phase and a subsequent on-chain voting phase executed via governance contracts (commonly through Tally's interface).

- Proposal categorisation: AIPs are categorised in documentation (including "Constitutional" and "Non-Constitutional" proposal types) with different scopes of effect as defined by the Arbitrum DAO documentation.

4. Cryptographic primitives and data integrity mechanisms

- Hashing: The protocol and governance documentation uses standard Ethereum-compatible hashing primitives, including keccak256, for certain integrity references (for example, document hashing in governance artefacts).

- BLS signatures for AnyTrust DAC certificates: AnyTrust documentation specifies that DAC membership is represented via keysets and that Data Availability Certificates (DACerts) use BLS public keys and threshold signing assumptions.

- Merkle commitments and proofs: Public specifications describe the use of Merkle commitments and Merkle proofs for state commitment structures and cross-chain messaging verification mechanisms.

- Compression: Nitro documentation describes batch and data handling components that include compression techniques for posting data to the parent chain, with commonly referenced implementations using Brotli compression.

5. Networking interfaces and client interaction standards

- RPC endpoints: Users and integrators interact with Arbitrum chains through JSON-RPC style endpoints compatible with Ethereum tooling patterns.

- Sequencer feed (operational interface): Documentation describes a sequencer broadcast mechanism (including WebSocket-based feeds) that provides near real-time transaction ordering information to clients; this interface is operational and does not constitute a separate consensus protocol of the Layer 2.

The following applies to Ethereum:

The crypto-asset operates on a defined set of protocols and technical standards that are intended to ensure its security, decentralisation, and functionality. Key items are set out below.

1. Network protocols

Ethereum operates as a decentralised, peer-to-peer network. Nodes communicate using the DevP2P networking stack, with RLPx as the encrypted transport layer for peer-to-peer messages.

Transaction ordering and finality are secured through a Proof-of-Stake (PoS) consensus mechanism. Validators on the Beacon Chain propose blocks, attest to them, and finalise them through Casper FFG operating on top of the LMD-GHOST fork-choice rule. Smart contract execution is performed by the Ethereum Virtual Machine (EVM), which interprets EVM bytecode within the gas limits set by the protocol and by the transaction sender.

2. Transaction and address standards

Ethereum addresses are 20-byte identifiers, derived as the last 20 bytes of the Keccak-256 hash of the uncompressed elliptic-curve public key (excluding the 0x04 prefix). They are commonly represented as 40-character hexadecimal strings with a 0x prefix and an optional EIP-55 mixed-case checksum.

The protocol currently supports the following transaction types:

- Type 0: legacy transactions (pre-EIP-1559).

- Type 1: access-list transactions (EIP-2930).

- Type 2: dynamic-fee transactions with base-fee burning (EIP-1559).

- Type 3: blob-carrying transactions (EIP-4844), introduced with the Dencun upgrade on 2024-03-13.

- Type 4: set-code transactions (EIP-7702), introduced with the Pectra upgrade on 2025-05-07, allow externally owned accounts (EOAs) to authorise delegated code execution during transactions, without permanently converting the account into a smart contract. This enables features such as transaction batching, sponsored gas payments and delegated signing.

3. Blockchain data structure and block standards

The Ethereum state consists of accounts (externally owned accounts and smart contracts) together with their associated storage and code, organised in Modified Merkle Patricia Tries to allow efficient verification.

Each block contains:

- a block header, comprising the parent hash, state root, transactions root, receipts root, timestamp, gas limit, gas used, and the proposer's signature, among other fields;

- the ordered list of transactions, including smart-contract executions and value transfers; and

- blob commitments, where applicable, referring to data published to the data availability layer under EIP-4844.

Block size is not fixed in bytes. It is constrained by a per-block gas limit, which is adjustable within protocol-defined bounds and currently targets approximately 60 million gas following EIP-7935 (Fusaka, activated on 2025-12-03). EIP-7825 (Fusaka) also introduces a per-transaction gas cap of 16,777,216 gas to improve block composability and resilience against denial-of-service patterns.

The data availability layer used by Layer 2 rollups, introduced through EIP-4844, was further developed by EIP-7691 (Pectra, 2025-05-07), which raised the maximum number of blob commitments per block, and by EIP-7594 (Fusaka, 2025-12-03), which introduced Peer Data Availability Sampling (PeerDAS). PeerDAS enables nodes to verify that blob data has been published by sampling small portions of it, rather than downloading every blob in full. Following PeerDAS, Ethereum uses Blob Parameter Only (BPO) forks, introduced by EIP-7892, to adjust blob targets and maxima between major upgrades.

4. Upgrade and improvement standards

Ethereum protocol upgrades are coordinated through the Ethereum Improvement Proposal (EIP) process. EIPs are published openly, reviewed by core developers and the wider community, and bundled into named hard-fork upgrades. The most recent network upgrades are the Pectra upgrade (2025-05-07) and the Fusaka upgrade (2025-12-03). The next named upgrade currently under preparation by the Ethereum core developers is referred to as Glamsterdam.

H.3 Technology used

The crypto-asset that is the subject of this white paper is available on multiple DLT networks. These include: Arbitrum and Ethereum. In general, when evaluating crypto-assets, all implementations across different networks must always be taken into account, as spillover effects can be adverse for investors.

The following applies to Arbitrum:

1. Arbitrum-compatible wallets: Tokens on Arbitrum are usable with standard Ethereum-compatible wallets that support EVM chains (for example, MetaMask) via the network's RPC endpoints.

2. Decentralised ledger and L1 settlement: Arbitrum maintains an account-based ledger and state as a Layer 2 chain, with transaction data posted to Ethereum Layer 1 in batches in rollup mode (including via calldata and, where configured, EIP-4844 blob transactions).

3. ERC-20 token standard: Arbitrum is EVM-compatible through the Nitro stack (built around a modified Geth core), and therefore supports standard EVM token interfaces such as ERC-20.

4. Multi-VM execution environment: In addition to EVM execution, Arbitrum supports a co-located WASM virtual machine via Stylus, enabling smart contract execution for WASM-compiled languages alongside EVM contracts.

5. Scalability and transaction efficiency design: As an optimistic rollup architecture, Arbitrum is designed to execute transactions on Layer 2 and publish the relevant data to Ethereum, with correctness enforcement and protocol security mechanisms anchored to the parent chain.

The following applies to Ethereum:

1. Decentralised Ledger: The Ethereum blockchain acts as the decentralised ledger and execution environment for ETH transactions and smart-contract operations, including ERC-20 token transfers, maintaining an append-only record of transfers and account balances to support transparency and verifiable settlement.

2. Account Model: Ethereum uses two account types: externally owned accounts (EOAs), which are controlled through private keys, and contract accounts, which are controlled through deployed smart contract code. Following the Pectra upgrade on 2025-05-07, EOAs can additionally authorise delegated code execution through EIP-7702 transactions without permanently converting the account into smart contracts.

3. Private Key Management: Users must securely store the private keys and recovery material associated with their wallets. Loss or compromise of a private key may result in irreversible loss of access to the associated ETH or ERC-20 token balance.

4. Cryptographic Integrity: Ethereum uses ECDSA over the secp256k1 elliptic curve for key generation and digital signatures on the execution layer. Keccak-256 hashing is used for transaction hashing, state hashing and address derivation. Ethereum addresses are derived from the last 20 bytes of the Keccak-256 hash of the public key. On the consensus layer, BLS (Boneh-Lynn-Shacham) signatures are used to aggregate validator attestations under the Proof-of-Stake consensus mechanism.

H.4 Consensus mechanism

The crypto-asset that is the subject of this white paper is available on multiple DLT networks. These include: Arbitrum and Ethereum. In general, when evaluating crypto-assets, all implementations across different networks must always be taken into account, as spillover effects can be adverse for investors.

The following applies to Arbitrum:

Arbitrum is a Layer-2 (L2) solution on Ethereum that is developed using the Arbitrum technology suite. L2 transactions do not have their own consensus mechanism and are only validated by the execution clients. The so-called sequencer regularly bundles stacks of L2 transactions and publishes them on the L1 network, i.e. Ethereum. Ethereum's consensus mechanism (Proof-of-Stake) thus indirectly secures all L2 transactions as soon as they are written to L1.

The following applies to Ethereum:

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

H.5 Incentive mechanisms and applicable fees

The crypto-asset that is the subject of this white paper is available on multiple DLT networks. These include: Arbitrum and Ethereum. In general, when evaluating crypto-assets, all implementations across different networks must always be taken into account, as spillover effects can be adverse for investors.

The following applies to Arbitrum:

Arbitrum is a Layer-2 (L2) solution on Ethereum that is developed using the Arbitrum technology suite. Transactions on Arbitrum are bundled by a so-called sequencer and the result is regularly submitted as a Layer-1 (L1) transaction. This way many L2 transactions get combined into a single L1 transaction. This lowers the average transaction cost per transaction, because many L2 transactions are aggregated into a single L1 transaction. This creates incentives to use Arbitrum rather than the L1, i.e. Ethereum, itself. To get crypto-assets in and out of Arbitrum, a special smart contract on Ethereum is used. Since there is no consensus mechanism on L2, an additional mechanism ensures that only existing funds can be withdrawn from L2. When a user wants to withdraw funds, that user needs to submit a withdrawal request on L1. If this request remains undisputed for a period of time the funds can be withdrawn. During this time period Arbitrum validators can dispute the claim, which will start a dispute resolution process. This process is designed with economic incentives for correct behaviour of all participants.

The following applies to Ethereum:

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in

consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

H.6 Use of distributed ledger technology

No – DLT is not operated by the issuer, the offeror, the person seeking admission to trading, or any third party acting on their behalf.

H.7 DLT functionality description

Not applicable, as the DLT is not operated by the issuer, the offeror, the person seeking admission to trading, or any third party acting on their behalf.

H.8 Audit

Given the breadth of the term "technology", it cannot be confirmed that all elements or aspects of the technology employed have undergone a comprehensive and systematic technical examination. Accordingly, no comprehensive audit of the technology used can be confirmed. This white paper focuses primarily on risk-related aspects and therefore does not imply, nor should it be interpreted as implying, that a full assessment or audit of all technological elements has been conducted.

H.9 Audit outcome

Not applicable, as no comprehensive audit of the technology used has been conducted or can be confirmed.

Part I – Information on risks

I.1 Offer-related risks

1. Regulatory and Compliance

Regulatory frameworks applicable to crypto-asset services in the European Union and in third countries are evolving. Supervisory authorities may introduce, interpret, or enforce rules that affect (i) the eligibility of this crypto-asset for admission to trading, (ii) the conditions under which a crypto-asset service provider may offer trading, custody, or transfer services for it, or (iii) the persons or jurisdictions to which such services may be provided. As a result, the crypto-asset service provider admitting this crypto-asset to trading may be required to suspend, restrict, or terminate trading or withdrawals for regulatory reasons, even if the crypto-asset itself continues to function on its underlying network.

2. Trading venue and connection risk

Trading in the crypto-asset depends on the uninterrupted operation of the trading venues on which it is listed and, where applicable, on its technical connections to external liquidity sources or venues. Interruptions such as system downtime, maintenance, faulty integrations, API changes, or failures at an external venue can temporarily prevent order placement, execution, deposits, or withdrawals, even when the underlying blockchain is functioning. In addition, trading platforms in emerging markets may operate under differing governance, compliance, and oversight standards, which can increase the risk of operational failures or disorderly market conditions.

3. Market formation and liquidity conditions

The price and tradability of the crypto-asset depend on actual trading activity on the venues to which the service provider is connected, whether centralised exchanges (CEXs) or decentralised exchanges (DEXs). Trading volumes may at times be low, order books thin, or liquidity concentrated on a single venue. In such conditions, buy or sell orders may not be executed in full or may be executed only at a less favourable price, resulting in slippage.

Volatility: The market price of the crypto-asset may fluctuate significantly over short periods, including for reasons that are not linked to changes in the underlying project or protocol. Periods of limited liquidity, shifts in overall market sentiment, or trading on only a small number of CEXs or DEXs can amplify these movements and lead to higher slippage when orders are executed. As a result, investors may be unable to sell the crypto-asset at or close to a previously observed price, even where no negative project-specific event has occurred.

4. Counterparty and service provider dependence

The admission of the crypto-asset to trading may rely on several external parties, such as connected centralised or decentralised trading venues, liquidity providers, brokers, custodians, or technical integrators. If any of these counterparties fail to perform, suspend their services, or apply internal restrictions, the trading, deposit, or withdrawal of the crypto-asset on the listing crypto-asset service provider can be interrupted or halted.

Quality of counterparties: Trading venues and service providers in certain jurisdictions may operate under regulatory or supervisory standards that are lower or differently enforced than those applicable in the European Union. In such environments, deficiencies in governance, risk management, or compliance may remain undetected, which increases the probability of abrupt service interruptions, investigations, or forced wind-downs.

Delisting and service suspension: The crypto-asset's availability may depend on the internal listing decisions of these counterparties. A delisting or suspension on a key connected venue can materially reduce liquidity or make trading temporarily impossible on the admitting service provider, even if the underlying crypto-asset continues to function.

Insolvency of counterparties: If a counterparty involved in holding, routing, or settling the crypto-asset becomes insolvent, enters restructuring, or is otherwise subject to resolution measures, assets held or processed by that counterparty may be frozen, become temporarily unavailable, or be recoverable only in part or not at all, which can result in losses for clients whose positions were maintained through that counterparty. This risk applies in particular where client assets are held on an omnibus basis or where segregation is not fully recognised in the counterparty's jurisdiction.

5. Operational and information risks

Due to the irrevocability of blockchain transactions, incorrect transaction approvals or the use of wrong networks or addresses will typically make the transferred funds irrecoverable. Because trading may also rely on technical connections to other venues or service providers, downtime or

faulty code in these connections can temporarily block trading, deposits, or withdrawals even when the underlying blockchain is functioning. In addition, different groups of market participants may have unequal access to technical, governance, or project-related information, which can lead to information asymmetry and place less informed investors at a disadvantage when making trading decisions.

6. Market access and liquidity concentration risk

If the crypto-asset is only available on a limited number of trading platforms or through a single market-making entity, this may result in reduced liquidity, greater price volatility, or periods of inaccessibility for retail holders.

I.2 Issuer-related risks

1. Insolvency of the issuer

As with any commercial entity, the issuer may face insolvency risks. These may result from insufficient funding, low market interest, mismanagement, or external shocks (e.g. pandemics, armed conflicts). In such a case, ongoing development, support, and governance of the project may cease, potentially affecting the viability and tradability of the crypto-asset.

2. Legal and regulatory risks

The issuer operates in a dynamic and evolving regulatory environment. Failure to comply with applicable laws or regulations in relevant jurisdictions may result in enforcement actions, penalties, or restrictions on the project's operations. These may negatively impact the crypto-asset's availability, market acceptance, or legal status.

3. Operational risks

The issuer may fail to implement adequate internal controls, risk management, or governance processes. This can result in operational disruptions, financial losses, delays in updating the white paper, or reputational damage.

4. Governance and decision-making

The issuer's management body is responsible for key strategic, operational, and disclosure decisions. Ineffective governance, delays in decision-making, or lack of resources may compromise the stability of the project and its compliance with MiCA requirements. High concentration of decision-making authority or changes in ownership/control can amplify these risks.

5. Reputational risks

The issuer's reputation may be harmed by internal failures, external accusations, or association with illicit activity. Negative publicity can reduce trust in the issuer and impact the perceived legitimacy or value of the crypto-asset.

6. Counterparty dependence

The issuer may depend on third-party providers for certain core functions, such as technology development, marketing, legal advice, or infrastructure. If these partners discontinue their services, change ownership, or underperform, the issuer's ability to operate the project or maintain investor communication may be impaired. This could disrupt project continuity or undermine market confidence, ultimately affecting the crypto-asset's value.

I.3 Crypto-assets-related risks

1. Valuation risk

The crypto-asset does not represent a claim, nor is it backed by physical assets or legal entitlements. Its market value is driven solely by supply and demand dynamics and may fluctuate significantly. In the absence of fundamental value anchors, such assets can lose their entire market value within a very short time. Historical market behaviour has shown that some types of crypto-assets have become worthless. Investors should be aware that this crypto-asset may lose all of its value.

2. Market volatility risk

Crypto-asset prices can fluctuate sharply due to changes in market sentiment, macroeconomic conditions, regulatory developments, or technology trends. Such volatility may result in rapid and significant losses. Holders should be prepared for the possibility of losing the full amount invested.

3. Liquidity and price-determination risk

Low trading volumes, fragmented trading across venues, or the absence of active market makers can restrict the ability to buy or sell the crypto-asset. In such situations, it is not guaranteed that an observable market price will exist at all times. Spreads may widen materially, and orders may only be executable under unfavourable conditions, which can make liquidation costly or temporarily impossible.

4. Crypto-asset security risk

Loss or theft of private keys, unauthorised access to wallets, or failures of custodial or exchange service providers can result in the irreversible loss of assets. Because blockchain transactions are final, recovery of funds after a compromise is generally impossible.

5. Fraud and scam risk

The pseudonymous and irreversible nature of blockchain transactions can attract fraudulent schemes. Typical forms include fake or unauthorised crypto-assets imitating established ones, phishing attempts, deceptive airdrops, or social-engineering attacks. Investors should exercise caution and verify the authenticity of counterparties and information sources.

6. Legal and regulatory reclassification risk

Legislative or regulatory changes in the European Union or in the Member State where the crypto-asset is admitted to trading may alter its legal classification, permitted uses, or tradability. In third countries, the crypto-asset may be treated as a financial instrument or security, which can restrict its offering, trading, or custody.

7. Absence of investor protection

The crypto-asset is not covered by investor-compensation or deposit-guarantee schemes. In the event of loss, fraud, or insolvency of a service provider, holders may have no access to recourse mechanisms typically available in regulated financial markets.

8. Counterparty risk

Reliance on third-party exchanges, custodians, or intermediaries exposes holders to operational failures, insolvency, or fraud of these parties. Investors should conduct due diligence on service providers, as their failure may lead to the partial or total loss of held assets.

9. Reputational risk

Negative publicity related to security incidents, misuse of blockchain technology, or associations with illicit activity can damage public confidence and reduce the crypto-asset's market value.

10. Community and sentiment risk

Because the crypto-asset's perceived relevance and expected future use depend largely on community engagement and the prevailing sentiment, a loss of public interest, negative coverage or reduced activity of key contributors can materially reduce market demand.

11. Macroeconomic and interest-rate risk

Fluctuations in interest rates, exchange rates, general market conditions, or overall market volatility can influence investor sentiment towards digital assets and affect the crypto-asset's market value.

12. Taxation risk

Tax treatment varies across jurisdictions. Holders are individually responsible for complying with all applicable tax laws, including the reporting and payment of taxes arising from the acquisition, holding, or disposal of the crypto-asset.

13. Anti-money-laundering and counter-terrorist financing risk

Wallet addresses or transactions connected to the crypto-asset may be linked to sanctioned or illicit activity. Regulatory responses to such findings may include transfer restrictions, reporting obligations, or the freezing of assets on certain venues.

14. Market-abuse risk

Due to limited oversight and transparency, crypto-assets may be vulnerable to market-abuse practices such as spoofing, pump-and-dump schemes, or insider trading. Such activities can distort prices and expose holders to sudden losses.

15. Legal ownership and jurisdictional risk

Depending on the applicable law, holders of the crypto-asset may not have enforceable ownership rights or effective legal remedies in cases of disputes, fraud, or service failure. In certain jurisdictions, access to exchanges or interfaces may be restricted by regulatory measures, even if on-chain transfer remains technically possible.

16. Concentration risk

A large proportion of the total supply may be held by a small number of holders. This can enable market manipulation, governance dominance, or sudden large-scale liquidations that adversely affect market stability, price levels, and investor confidence.

I.4 Project implementation-related risks

As this white paper relates to admission to trading of the crypto-asset, the risk description below reflects general implementation risks typically associated with crypto-asset projects and relevant for the crypto-asset service provider. The party admitting the crypto-asset to trading is not involved in the project's implementation and does not assume responsibility for its governance, funding, or execution.

Delays, failures, or changes in the implementation of the project as outlined in its public roadmap or technical documentation may negatively impact the perceived credibility or usability of the crypto-asset. This includes risks related to project governance, resource allocation, technical delivery, and team continuity.

Key-person risk: The project may rely on a limited number of individuals for development, maintenance, or strategic direction. The departure, incapacity, or misalignment of these individuals may delay or derail the implementation.

Timeline and milestone risk: Project milestones may not be met as announced. Delays in feature releases, protocol upgrades, or external integrations can undermine market confidence and affect the adoption, use, or value of the crypto-asset.

Delivery risk: Even if implemented on time, certain functionalities or integrations may not perform as intended or may be scaled back during execution, limiting the crypto-asset's practical utility.

I.5 Technology-related risks

As this white paper relates to admission to trading of the crypto-asset, the following risks concern the underlying distributed ledger technology (DLT), its supporting infrastructure, and related technical dependencies. Failures or vulnerabilities in these systems may affect the availability, integrity, or transferability of the crypto-asset.

1. Blockchain dependency risk

The functionality of the crypto-asset depends on the continuous and stable operation of the blockchain(s) on which it is issued. Network congestion, outages, or protocol errors may temporarily or permanently disrupt on-chain transactions. Extended downtime or degradation in network performance can affect trading, settlement, or the usability of the crypto-asset.

2. Smart contract vulnerability risk

The smart contract that defines the crypto-asset's parameters or governs its transfers may contain coding errors or security vulnerabilities. Exploitation of such weaknesses can result in unintended token minting, permanent loss of funds, or disruption of token functionality. Even after external audits, undetected vulnerabilities may persist due to the immutable nature of deployed code.

3. Wallet and key-management risk

The custody of crypto-assets relies on secure private key management. Loss, theft, or compromise of private keys results in irreversible loss of access. Custodians, trading venues, or wallet providers may be targeted by cyberattacks. Compatibility issues between wallet software and changes to the blockchain protocol (e.g. network upgrades) can further limit user access or the ability to transfer the crypto-asset.

Outdated or vulnerable wallet software:

Users relying on outdated, unaudited, or unsupported wallet software may face compatibility issues, security vulnerabilities, or failures when interacting with the blockchain. Failure to update wallet software in line with protocol developments can result in transaction errors, loss of access, or exposure to known exploits.

4. Network security risks

Attack risks: Blockchains may be subject to denial-of-service (DoS) attacks, 51% attacks, or other exploits targeting the consensus mechanism. These can delay transactions, compromise finality, or disrupt the accurate recording of transfers.

Centralisation concerns: Despite claims of decentralisation, a relatively small number of validators or a high concentration of stake may increase the risk of collusion, censorship, or coordinated network downtime, which can affect the resilience and operational reliability of the crypto-asset.

5. Bridge and interoperability risk

Where tokens can be bridged or wrapped across multiple blockchains, vulnerabilities in bridge protocols, validator sets, or locking mechanisms may result in loss, duplication, or misrepresentation of assets. Exploits or technical failures in these systems can instantly impact circulating supply, ownership claims, or token fungibility across chains.

6. Forking and protocol-upgrade risk

Network upgrades or disagreements among node operators or validators can result in blockchain "forks", where the blockchain splits into two or more incompatible versions that continue separately from a shared past. This may lead to duplicate token representations or incompatibilities between exchanges and wallets. Until consensus stabilises, trading or transfers may be disrupted or misaligned. Such situations may be difficult for retail holders to navigate, particularly when trading platforms or wallets display inconsistent token information.

7. Economic-layer and abstraction risk

Mechanisms such as gas relayers, wrapped tokens, or synthetic representations may alter the transaction economics of the underlying token. Changes in transaction costs, token demand, or utility may reduce its usage and weaken both its economic function and perceived value within its ecosystem.

8. Spam and network-efficiency risk

High volumes of low-value ("dust") or automated transactions may congest the network, slow validation times, inflate ledger size, and raise transaction costs. This can impair performance, reduce throughput, and expose address patterns to analysis, thereby reducing network efficiency and privacy.

9. Front-end and access-interface risk

If users rely on centralised web interfaces or hosted wallets to interact with the blockchain, service outages, malicious compromises, or domain expiries affecting these interfaces may block access to the crypto-asset, even while the blockchain itself remains fully functional. Dependence on single web portals introduces a critical point of failure outside the DLT layer.

10. Decentralisation claim risk

While the technical infrastructure may appear distributed, the actual governance or economic control of the project may lie with a small set of actors. This disconnect between marketing claims and structural reality can lead to regulatory scrutiny, reputational damage, or legal uncertainty – especially if the project is presented as 'community-governed' without substantiation.

I.6 Mitigation measures

None.

Part J – Information on the sustainability indicators in relation to adverse impact on the climate and other environment-related adverse impacts

J.1 Adverse impacts on climate and other environment-related adverse impacts

S.1 Name

Crypto Risk Metrics GmbH

S.2 Relevant legal entity identifier

39120077M9TG0O1FE242

S.3 Name of the crypto-asset

Graph Token

S.4 Consensus Mechanism

The crypto-asset that is the subject of this white paper is available on multiple DLT networks. These include: Arbitrum and Ethereum. In general, when evaluating crypto-assets, all implementations across different networks must always be taken into account, as spillover effects can be adverse for investors.

The following applies to Arbitrum:

Arbitrum is a Layer-2 (L2) solution on Ethereum that is developed using the Arbitrum technology suite. L2 transactions do not have their own consensus mechanism and are only validated by the execution clients. The so-called sequencer regularly bundles stacks of L2 transactions and publishes them on the L1 network, i.e. Ethereum. Ethereum's consensus mechanism (Proof-of-Stake) thus indirectly secures all L2 transactions as soon as they are written to L1.

The following applies to Ethereum:

Ethereum uses a Proof-of-Stake (PoS) consensus mechanism introduced with The Merge on 2022-09-15, which replaced the previous Proof-of-Work consensus model. The PoS mechanism is implemented through Gasper, combining Casper-FFG for finality with the LMD-GHOST fork-choice rule for chain selection. Validators participate in consensus by staking ETH through the Beacon

Chain. Validators are pseudo-randomly selected to propose new blocks, while other validators attest to the validity of proposed blocks. The network operates using 12-second slots grouped into epochs of 32 slots. Under normal network conditions, finality is typically achieved after two epochs, approximately 12.8 minutes, through Casper-FFG. The LMD-GHOST fork-choice rule determines the canonical chain based on the accumulated weight of validator attestations. Validators that engage in certain malicious behaviour, such as equivocation or contradictory attestations, may be subject to slashing penalties, while offline validators may incur inactivity penalties. Subsequent network upgrades, including Dencun (2024-03-13), Pectra (2025-05-07) and Fusaka (2025-12-03), introduced protocol changes affecting Ethereum's consensus mechanism and Layer 2 functionality.

S.5 Incentive Mechanisms and Applicable Fees

The crypto-asset that is the subject of this white paper is available on multiple DLT networks. These include: Arbitrum and Ethereum. In general, when evaluating crypto-assets, all implementations across different networks must always be taken into account, as spillover effects can be adverse for investors.

The following applies to Arbitrum:

Arbitrum is a Layer-2 (L2) solution on Ethereum that is developed using the Arbitrum technology suite. Transactions on Arbitrum are bundled by a so-called sequencer and the result is regularly submitted as a Layer-1 (L1) transaction. This way many L2 transactions get combined into a single L1 transaction. This lowers the average transaction cost per transaction, because many L2 transactions are aggregated into a single L1 transaction. This creates incentives to use Arbitrum rather than the L1, i.e. Ethereum, itself. To get crypto-assets in and out of Arbitrum, a special smart contract on Ethereum is used. Since there is no consensus mechanism on L2, an additional mechanism ensures that only existing funds can be withdrawn from L2. When a user wants to withdraw funds, that user needs to submit a withdrawal request on L1. If this request remains undisputed for a period of time the funds can be withdrawn. During this time period Arbitrum validators can dispute the claim, which will start a dispute resolution process. This process is designed with economic incentives for correct behaviour of all participants.

The following applies to Ethereum:

Ethereum's Proof-of-Stake (PoS) mechanism secures the network through validator incentives and protocol-defined penalties. Validators are required to stake ETH in order to participate in block proposal and attestation activities. A minimum of 32 ETH is required to activate a validator. Following the Pectra upgrade on 2025-05-07, EIP-7251 increased the maximum effective balance per validator from 32 ETH to 2,048 ETH. Validators may receive protocol-defined rewards for proposing blocks, attesting to valid blocks and participating in sync committees. Rewards consist of newly issued ETH and transaction-related fees. Transaction fees on Ethereum follow the mechanism introduced by EIP-1559, under which each transaction includes a base fee that is burned at the protocol level and an optional priority fee paid to the validator proposing the relevant block. Validators that engage in certain malicious behaviour, including equivocation or contradictory attestations, may be subject to slashing penalties. Validators that fail to participate correctly in consensus activities may also incur inactivity penalties. These mechanisms are intended to support validator participation and the economic security of the Ethereum network.

S.6 Beginning of the period to which the disclosure relates

2025-07-08

S.7 End of the period to which the disclosure relates

2026-07-08

S.8 Energy consumption

264.89015 kWh/a

S.9 Energy consumption sources and methodologies

The energy consumption associated with this crypto-asset is aggregated of multiple contributing components, primarily the underlying blockchain network and the execution of token-specific operations. To determine the energy consumption of a token, the energy consumption of the underlying blockchain network: Ethereum and Arbitrum is calculated first. A proportionate share of that energy use is then attributed to the token based on its expected activity level within the network (e.g. transaction volume, contract execution).

The Functionally Fungible Group Digital Token Identifier (FFG DTI) is used to determine all technically equivalent implementations of the crypto-asset in scope.

Estimates regarding hardware types, node distribution, and the number of network participants are based on informed assumptions, supported by best-effort verification against available empirical data. Unless robust evidence suggests otherwise, participants are assumed to act in an economically rational manner. In line with the precautionary principle, conservative estimates are applied where uncertainty exists – that is, estimates tend towards the higher end of potential environmental impact.

S.10 Renewable energy consumption

37.9124101186 %

S.11 Energy intensity

0.00006 kWh

S.12 Scope 1 DLT GHG emissions – Controlled

0.00000 tCO2e/a

S.13 Scope 2 DLT GHG emissions – Purchased

0.08816 tCO2e/a

S.14 GHG intensity

0.00001 kgCO2e

S.15 Key energy sources and methodologies

To determine the proportion of renewable energy usage, the locations of the nodes are determined using public information sites, open-source and in-house-developed crawlers. Where no information is available on the geographic distribution of nodes, comparable reference networks are used, taking into account similarities in incentivisation structure and consensus mechanism. This geographic information is then combined with publicly available data from Our World in Data. The resulting intensity is calculated as the marginal energy consumption with respect to one additional 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]. Underlying sources: Ember, "Yearly Electricity Data Europe"; Ember, "Yearly Electricity Data"; Energy Institute, "Statistical Review of World Energy". Retrieved from: https://ourworldindata.org/grapher/share-electricity-renewables

S.16 Key GHG sources and methodologies

To determine GHG emissions, the locations of the nodes are determined using public information sites, open-source crawlers, and crawlers developed in-house. Where no information is available on the geographic distribution of nodes, comparable reference networks are used, taking into account similarities in incentivisation structure and consensus mechanism. This geographic information is then combined with publicly available data from Our World in Data. The resulting intensity is calculated as the marginal emission intensity with respect to one additional 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]. Underlying sources: Ember, "Yearly Electricity Data Europe"; Ember, "Yearly Electricity Data"; Energy Institute, "Statistical Review of World Energy". Retrieved from: https://ourworldindata.org/grapher/carbon-intensity-electricity. Licensed under CC BY 4.0.

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