

# **White paper drafted under the European Markets in Crypto- Assets Regulation (EU) 2023/1114 for FFG 13JBPT88T**

# Preamble

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## **01. Date of notification**

2025-06-26

## **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 omissions 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**

Since the token has multiple functions (hybrid token), these are already conceptually not utility tokens within the meaning of the MiCAR within the definition of Article 3 (1), due to the necessity of the "exclusivity".

## **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**

Pudgy Penguins tokens this white paper refers to are crypto-assets other than EMTs and ARTs, which are currently available on the Solana blockchain (at the time of writing this white paper (2025-05-28) and according to DTI FFG shown in F.14).

The initial production of the 88,888,888,888 tokens (the so-called "mint") took place on November 29, 2024 23:15:04 +UTC (see transaction hash: 5mSLwwmFe7rmREBvhp4YR8B5hveTHQ6NhRkJrcY5ZUVmXeMC8rdsHRRkxj8s4EG6NGYJ1PTYL2ssRuQ28V2gsBKo).

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

Since the token has multiple functions (hybrid token), these are already conceptually not utility tokens within the meaning of the MiCAR within the definition of Article 3 (1), due to the necessity of the "exclusivity".

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

Crypto Risk Metrics GmbH is seeking admission to trading on any Crypto Asset Service Provider platform in the European Union in accordance to 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. In accordance to Article 5(4), this crypto-asset white paper may be used by entities admitting the token to trading after Crypto Risk Metrics GmbH as the person responsible for drawing up such white paper has given its consent to its use in writing to the respective Crypto Asset Service Provider. If a CASP wishes to use this white paper, inquiries can be made under [info@crypto-risk-metrics.com](mailto:info@crypto-risk-metrics.com).

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

### **A.1 Name**

Crypto Risk Metrics GmbH

### **A.2 Legal form**

2HBR

### **A.3 Registered address**

DE, Lange Reihe 73, 20099 Hamburg, Germany

**A.4 Head office**

Not applicable.

**A.5 Registration date**

2018-12-03

**A.6 Legal entity identifier**

39120077M9TG001FE242

**A.7 Another identifier required pursuant to applicable national law**

Crypto Risk Metrics GmbH is registered with the commercial register in the the city of Hamburg, Germany, under number HRB 154488.

**A.8 Contact telephone number**

+4915144974120

**A.9 E-mail address**

info@crypto-risk-metrics.com

**A.10 Response time (Days)**

030

**A.11 Parent company**

Not applicable.

**A.12 Members of the management body**

Name	Position	Address
Tim Zölitz	Chairman	Lange Reihe 73, 20099 Hamburg, Germany

**A.13 Business activity**

Crypto Risk Metrics GmbH is a technical service provider, who supports regulated entities in the fulfillment of their regulatory requirements. In this regard, Crypto Risk Metrics

GmbH acts as a data-provider for ESG-data according to article 66 (5). Due to the regulations laid out in article 5 (4) of the 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 at providing central services for crypto-asset white papers in order to minimize market confusion due to conflicting white papers for the same asset.

#### **A.14 Parent company business activity**

Not applicable.

#### **A.15 Newly established**

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

#### **A.16 Financial condition for the past three years**

Crypto Risk Metrics GmbH's profit after tax for the last three financial years are as follows:

2024 (unaudited): negative 50.891,81 EUR

2023 (unaudited): negative 27.665,32 EUR

2022: 104.283,00 EUR.

As 2023 and 2024 were the years building Software for the MiCAR-Regulation which was not yet in place, revenue streams from these investments are expected to be generated in 2025.

#### **A.17 Financial condition since registration**

This point would only be applicable if the company were newly established and the financial conditions for the past three years had not been provided in the bulletpoint before.

## **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

### **B.2 Name**

On the project's official website ("<https://www.pudgypenguins.com/pengu>", accessed on 2025-05-28), "LSLTTT HOLDINGS INC" is named as the entity responsible for the crypto asset. This company also holds the related IP-rights.

### **B.3 Legal form**

8N21, Limited Liability Company

### **B.4. Registered address**

16192 Coastal Highway, Lewes, DE 19958. Based on information from the website, whereby the information cannot be verified independently.

### **B.5 Head office**

16192 Coastal Highway, Lewes, DE 19958. Based on information from the website, whereby the information cannot be verified independently.

### **B.6 Registration date**

Could not be found while drafting this white paper (2025-05-28).

### **B.7 Legal entity identifier**

Could not be found while drafting this white paper (2025-05-28).

### **B.8 Another identifier required pursuant to applicable national law**

Not applicable.

### **B.9 Parent company**

Due to no entries in public registers, this information cannot be verified independently.



**B.10 Members of the management body**

Due to no entries in public registers, this information cannot be verified independently.

**B.11 Business activity**

According to the trademark register "Justia", "LSLTTT HOLDINGS INC." holds various trademarks.

**B.12 Parent company business activity**

Due to no entries in public registers, this information cannot be verified independently.

**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.

**C.2 Legal form**

Not applicable.

**C.3 Registered address**

Not applicable.

**C.4 Head office**

Not applicable.

**C.5 Registration date**

Not applicable.

**C.6 Legal entity identifier**

Not applicable.

**C.7 Another identifier required pursuant to applicable national law**

Not applicable.

**C.8 Parent company**

Not applicable.

**C.9 Reason for crypto-Asset white paper Preparation**

Not applicable.

**C.10 Members of the Management body**

Not applicable.

**C.11 Operator business activity**

Not applicable.

**C.12 Parent company business activity**

Not applicable.

**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.

**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.

**Part D – Information about the crypto-asset project****D.1 Crypto-asset project name**

Long Name: "Pudgy Penguins", Short Name: "PENGU" according to the Digital Token Identifier Foundation ([www.dtif.org](http://www.dtif.org), DTI see F.13, FFG DTI see F.14 as of 2025-05-27).

**D.2 Crypto-assets name**

See F.13.

### D.3 Abbreviation

See F.13.

### D.4 Crypto-asset project description

Pengu is a meme-inspired crypto asset launched in December 2024 on the Solana blockchain. It is tied to the popular NFT collection Pudgy Penguins, a widely recognized digital brand known for its cartoon penguin avatars and expansive online community.

The token was introduced as part of a broader effort by LSLTTT Holdings Inc., the company that owns and operates the Pudgy Penguins intellectual property. While the project carries an element of meme culture, it also aims to provide community incentives, ecosystem engagement, and potential integration with physical merchandise like Pudgy Toys.

Unlike many meme coins, Pengu is supported by a formal corporate entity and includes elements of structured tokenomics.

Nevertheless, the project is set up as a pure “meme” project and does not grant any substantial rights to investors.

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

Name	Role
Intro	The following persons or references for persons involved are published on the official website of the project ( <a href="https://www.pudgypenguins.com/about-us">https://www.pudgypenguins.com/about-us</a> ) at the time of writing the white paper (2025-05-28). It cannot be confirmed that there are real people behind these references, nor whether they are actually

	involved and whether other people are involved.
Luca Netz	CEO
Lorenzo Melendez	President
Austin	Head of marketing
Peter Lobanov	CCO
Jennifer Mcglone	CLO
Vedant	Head of strategy

#### **D.6 Utility Token Classification**

The token does not classify as a utility token.

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

Not applicable.

#### **D.8 Plans for the token**

At the time of writing this white paper (2025-05-28), no future plans for the crypto-asset were to be found.

#### **D.9 Resource allocation**

The issuer's official website (<https://www.pudgypenguins.com/pengu>) provides information on the planned use of the funds. The investor faces risks due to the uncertainty of the distribution of the tokens.

Likewise, the investor must be aware that a planned distribution of funds is not technically binding – it is only a planned use and not a technically fixed distribution. The following entities are involved in the token distribution: "Current & Future Team" (17,8%), "Liquidity"

(12,35%), "Public Good" (4%), "Proliferation" (4%), "FTT Holders" (0,35%), "Company" (11,48%), "Pudgy community" (25,9%), "Other communities" (24,12%).

The actual distribution of tokens can be traced on-chain: <https://solscan.io/token/2zMMhcVQEXDtdE6vsFS7S7D5oUodfjHE8vd1gnBouauv#holders>. The investor must be aware that a public address cannot necessarily be assigned to a single person or other entity why the economic justification and thus possible future actions cannot be determined.

#### **D.10 Planned use of Collected funds or crypto-Assets**

See D.9.

## **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**

The white paper concerns the admission to trading (i. e. ATTR) on any Crypto Asset Service Providers platform that has obtained the written consent of Crypto Risk Metrics GmbH as the person drafting this white paper.

### **E.2 Reasons for public offer or admission to trading**

As already stated in A.13, Crypto Risk Metrics GmbH aims to provide central services to draw up crypto-asset white papers in accordance to COMMISSION IMPLEMENTING REGULATION (EU) 2024/2984. These services are offered in order to minimize market confusion due to conflicting white papers for the same asset drawn up from different Crypto Asset Service Providers. As of now, such a scenario seems highly likely as a Crypto Asset Service Provider who drew up a crypto-asset white paper and admitted the respective token in the Union has no incentive to give his written consent to another Crypto Asset Service Provider according to Article 5 (4 b) of the REGULATION (EU) 2023/1114 to use the white paper for his regulatory obligations, as this would 1.

strengthen the market-positioning of the other Crypto Asset Service Provider (who is most likely a competitor) and 2. also entail liability risks.

**E.3 Fundraising target**

Not applicable.

**E.4 Minimum subscription goals**

Not applicable.

**E.5 Maximum subscription goals**

Not applicable.

**E.6 Oversubscription acceptance**

Not applicable.

**E.7 Oversubscription allocation**

Not applicable.

**E.8 Issue price**

Not applicable.

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

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

**E.10 Subscription fee**

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

**E.11 Offer price determination method**

Once the token is admitted to trading its price will be determined by demand (buyers) and supply (sellers).

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

As stated on the website:  
<https://solscan.io/tx/5mSLwwmFe7rmREBvhp4YR8B5hveTHQ6NhRkJrcY5ZUVmXeMC8rd sHRRkxj8s4EG6NGYJ1PTYL2ssRuQ28V2gsBKo>, a total of 88,888,888,888 tokens were minted.

**E.13 Targeted holders**

ALL

**E.14 Holder restrictions**

The Holder restrictions are subject to the rules applicable to the Crypto Asset Service Provider as well as additional restrictions the Crypto Asset Service Providers might set in force.

**E.15 Reimbursement notice**

Not applicable.

**E.16 Refund mechanism**

Not applicable.

**E.17 Refund timeline**

Not applicable.

**E.18 Offer phases**

Not applicable.

**E.19 Early purchase discount**

Not applicable.

**E.20 Time-limited offer**

Not applicable.

**E.21 Subscription period beginning**

Not applicable.

**E.22 Subscription period end**

Not applicable.

**E.23 Safeguarding arrangements for offered funds/crypto- Assets**

Not applicable.

**E.24 Payment methods for crypto-asset purchase**

The payment methods are subject to the respective capabilities of the Crypto Asset Service Provider listing the crypto-asset.

**E.25 Value transfer methods for reimbursement**

Not applicable.

**E.26 Right of withdrawal**

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

**E.27 Transfer of purchased crypto-assets**

The transfer of purchased crypto-assets are subject to the respective capabilities of the Crypto Asset Service Provider listing the crypto-asset.

**E.28 Transfer time schedule**

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

**E.29 Purchaser's technical requirements**

The technical requirements that the purchaser is required to fulfil to hold the crypto-assets of purchased crypto-assets are subject to the respective capabilities of the Crypto Asset Service Provider listing the crypto-asset.

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

Not applicable.



**E.31 CASP identifier**

Not applicable.

**E.32 Placement form**

Not applicable.

**E.33 Trading platforms name**

The trading on all MiCAR-compliant trading platforms is sought.

**E.34 Trading platforms Market identifier code (MIC)**

Not applicable.

**E.35 Trading platforms access**

This depends on the trading platform listing the asset.

**E.36 Involved costs**

This depends on the trading platform listing the asset. Furthermore, costs may occur for making transfers out of the platform (i. e. "gas costs" for blockchain network use that may exceed the value of the crypto-asset itself).

**E.37 Offer expenses**

Not applicable, as this crypto-asset white paper concerns the admission to trading and not the offer of the token to the public.

**E.38 Conflicts of interest**

MiCAR-compliant Crypto Asset Service Providers shall have strong measurements in place in order to manage conflicts of interests. Due to the broad audience this white-paper is addressing, potential investors should always check the conflicts of Interest policy of their respective counterparty.

**E.39 Applicable law**

Not applicable, as it is referred to on "offer to the public" and in this white-paper, the admission to trading is sought.

#### **E.40 Competent court**

Not applicable, as it is referred to on "offer to the public" and in this white-paper, the admission to trading is sought.

## **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 (MiCAR) but does not qualify as an electronic money token (EMT) or 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 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 not supported by a stabilization mechanism. It is neither pegged to any fiat currency nor backed by any external assets, distinguishing it clearly from EMTs and ARTs.

Furthermore, the crypto-asset is not categorized 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, ensuring that it remains outside the scope of regulatory frameworks applicable to traditional financial instruments.

### **F.2 Crypto-asset functionality**

Pengu is a meme-based utility token within the Pudgy Penguins ecosystem. It may be used for community participation, access to exclusive content, and potential rewards. While it reflects the playful spirit of the brand, it offers no guarantees of value, utility, or future benefits.

Since the token has multiple functions (hybrid token), these are already conceptually not utility tokens within the meaning of the MiCAR within the definition of Article 3 (1), due to the necessity of the "exclusivity".

### **F.3 Planned application of functionalities**

All functionalities referred to in F.2 have already been applied. There were no statements to be found to further functionalities for the token while drafting this white paper (2025-05-28).

**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 white paper submission type is "CORR", which stands for correction.

### **F.6 Crypto-asset characteristics**

The tokens are crypto-assets other than EMTs and ARTs, which are available on the Solana blockchain. The tokens are fungible (up to 6 digits after the decimal point), and a total of 88,888,888,888 have already been issued. The tokens are a digital representation of value, and have no inherent rights attached as well as no intrinsic utility.

### **F.7 Commercial name or trading name**

See F.13.

### **F.8 Website of the issuer**

<https://www.pudgypenguins.com/pengu>

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

2025-06-30

**F.10 Publication date**

2025-06-30

**F.11 Any other services provided by the issuer**

The issuer of the token is a US-based entity and due to the lack of publicly available information and resources while drawing up this white paper (2025-05-28) it is not possible to exclude a possibility that the issuer of the token provides or will provide other services not covered by Regulation (EU) 2023/1114 (i.e. MiCAR).

**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, where available**

XNT9ZM8KB

**F.14 Functionally fungible group digital token identifier, where available**

13JBPT88T

**F.15 Voluntary data flag**

Mandatory

**F.16 Personal data flag**

The white paper does contain personal data.

**F.17 LEI eligibility**

The issuer should be eligible for a Legal Entity Identifier.

**F.18 Home Member State**

Germany

### **F.19 Host Member States**

Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, 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**

No legally binding real or contractual obligations are linked to the crypto-asset. The technically possible governance participations and functionalities described in F.2 cannot be independently verified and it cannot be guaranteed that these promises have legal binding force that an investor can enforce.

### **G.2 Exercise of rights and obligations**

As the token grants no legal binding rights nor obligations, there are no procedures and conditions for the exercise of these rights applicable.

The promise of governance participation is based on technical circumstances and relies on smart contract functionalities and voting platforms. It is not certain whether this infrastructure will be available for use of these governance functions on a permanent basis.

### **G.3 Conditions for modifications of rights and obligations**

As the token grants no legal binding rights nor obligations, there are no procedures and conditions for the exercise of these rights applicable.

An adjustment of the technical infrastructure necessary to exercise the promised governance rights, declining functionality due to dilution, changing rights within the voting platforms, and all other adverse effects for investors may occur at any time.

#### **G.4 Future public offers**

Information on the future offers to the public of crypto-assets were not available at the time of writing this white paper (2025-05-28).

#### **G.5 Issuer retained crypto-assets**

The issuer's official website (<https://www.pudgypenguins.com/pengu>) provides information on the planned use of the funds. The investor faces risks due to the uncertainty of the distribution of the tokens.

Likewise, the investor must be aware that a planned distribution of funds is not technically binding – it is only a planned use and not a technically fixed distribution. The following entities are involved in the token distribution: "Current & Future Team" (17,8%), "Liquidity" (12,35%), "Public Good" (4%), "Proliferation" (4%), "FTT Holders" (0,35%), "Company" (11,48%), "Pudgy community" (25,9%), "Other communities" (24,12%).

The actual distribution of tokens can be traced on-chain: <https://solscan.io/token/2zMMhcVQEXDtdE6vsFS7S7D5oUodfjHE8vd1gnBouauv#holders>. The investor must be aware that a public address cannot necessarily be assigned to a single person or other entity why the economic justification and thus possible future actions cannot be determined.

#### **G.6 Utility token classification**

No

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

Not applicable.

#### **G.8 Utility tokens redemption**

Not applicable.

#### **G.9 Non-trading request**

The admission to trading is sought.

**G.10 Crypto-assets purchase or sale modalities**

Not applicable, as the admission to trading of the tokens is sought.

**G.11 Crypto-assets transfer restrictions**

The crypto-assets as such do not have any transfer restrictions and are generally freely transferable. The Crypto Asset Service Providers can impose their own restrictions in agreements they enter with their clients. The Crypto Asset Service Providers may impose restrictions to buyers and sellers in accordance with applicable laws and internal policies and terms.

**G.12 Supply adjustment protocols**

No, there are no fixed protocols that can increase or decrease the supply implemented as of 2025-05-28. Nevertheless, it is possible that the owner of the smart-contract has the ability to increase or decrease the token-supply in response to changes in demand. Also, it is possible to decrease the circulating supply, by transferring crypto-assets to so called "burn-adresses", which are adresses that render the crypto-asset "non-transferable" after sent to those adresses.

**G.13 Supply adjustment mechanisms**

The mint authority (the entity who can create new tokens of that crypto-asset), as stated in the data account, has the potential right to change the supply of the crypto-assets. However, since the mint authority was revoked, it should not be possible to increase the token supply, however the whole data account could be updated which then in turn could lead to a situation that total supply could be altered again.

**G.14 Token value protection schemes**

No, the token does not have value protection schemes.

**G.15 Token value protection schemes description**

Not applicable.

**G.16 Compensation schemes**

No, the token does not have compensation schemes.

### **G.17 Compensation schemes description**

Not applicable.

### **G.18 Applicable law**

The token is not subject to any predetermined court jurisdiction. Competent court likely depends on the location of any particular party and/or the location of any particular transaction with the token.

### **G.19 Competent court**

The token is not subject to any predetermined court jurisdiction. Competent court likely depends on the location of any particular party and/or the location of any particular transaction with the token.

## **Part H – information on the underlying technology**

### **H.1 Distributed ledger technology (DTL)**

See F.13.

### **H.2 Protocols and technical standards**

The tokens were created with Solana's Token Program, a smart contract that is part of the Solana Program Library (SPL). Such tokens are commonly referred to as SPL-token. The token itself is not an additional smart contract, but what is called a data account on Solana. As the name suggests data accounts store data on the blockchain. However, unlike smart contracts, they cannot be executed and cannot perform any operations. Since one cannot interact with data accounts directly, any interaction with an SPL-token is done via Solana's Token Program. The source code of this smart contract can be found here <https://github.com/solana-program/token>.

The Token Program is developed in Rust, a memory-safe, high-performance programming language designed for secure and efficient development. On Solana, Rust is said to be the primary language used for developing on-chain programs (smart contracts), intended to ensure safety and reliability in decentralized applications (dApps).



Core functions of the Token Program:

`initialize_mint()` → Create a new type of token, called a mint

`mint_to()` → Mints new tokens of a specific type to a specified account

`burn()` → Burns tokens from a specified account, reducing total supply

`transfer()` → Transfers tokens between accounts

`approve()` → Approves a delegate to spend tokens on behalf of the owner

`set_authority()` → Updates authorities (mint, freeze, or transfer authority)

These functions ensure basic operations like transfers, and minting/burning can be performed within the Solana ecosystem.

In addition to the Token Program, another smart contract, the Metaplex Token Metadata Program is commonly used to store name, symbol, and URI information for better ecosystem compatibility. This additional metadata has no effect on the token's functionality.

### **H.3 Technology used**

1. Solana-Compatible Wallets: The tokens are supported by all wallets compatible with Solana's Token Program
2. Decentralized Ledger: The Solana blockchain acts as a decentralized ledger for all token transactions, with the intention to preserving an unalterable record of token transfers and ownership to ensure both transparency and security.
3. SPL Token Program: The SPL (Solana Program Library) Token Program is an inherent Solana smart contract built to create and manage new types of tokens (so called mints). This is significantly different from ERC-20 on Ethereum, because a single smart contract that is part of Solana's core functionality and as such is open source, is responsible for all the tokens. This ensures a high uniformity across tokens at the cost of flexibility.

4. Blockchain Scalability: With its intended capacity for processing a lot of transactions per second and in most cases low fees, Solana is intended to enable efficient token transactions, maintaining high performance even during peak network usage.

Security Protocols for Asset Custody and Transactions:

1. Private Key Management: To safeguard their token holdings, users must securely store their wallet's private keys and recovery phrases.

2. Cryptographic Integrity: Solana employs elliptic curve cryptography to validate and execute transactions securely, intended to ensure the integrity of all transfers.

#### **H.4 Consensus mechanism**

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS). The core concepts of the mechanism are intended to work as follows:

Core Concepts

1. Proof of History (PoH):

Time-Stamped Transactions: PoH is a cryptographic technique that timestamps transactions, intended to creating a historical record that proves that an event has occurred at a specific moment in time.

Verifiable Delay Function: PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, intended to enabling the network to efficiently agree on the sequence of transactions.

2. Proof of Stake (PoS):

Validator Selection: Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.

Delegation: Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while intended to enhancing the network's security.

## Consensus Process

### 1. Transaction Validation:

Transactions are broadcasted to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

### 2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a cryptographic clock for the network.

### 3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

### 4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

## Security and Economic Incentives

### 1. Incentives for Validators:

Block Rewards: Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.

Transaction Fees: Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

## 2. Security:

Staking: Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.

Delegated Staking: Token holders can delegate their SOL tokens to validators, intended to enhance network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

## 3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

### **H.5 Incentive mechanisms and applicable fees**

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS) to secure its network and validate transactions. Here's a detailed explanation of the incentive mechanisms and applicable fees:

#### Incentive Mechanisms

##### 1. Validators:

Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.

Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This provides an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.

## 2. Delegators:

Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share in the rewards earned by the validators. This encourages widespread participation in securing the network and ensures decentralization.

## 3. Economic Security:

Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing deters dishonest actions and ensures that validators act in the best interest of the network.

Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost incentivizes participants to act honestly to earn rewards and avoid penalties.

## Fees Applicable on the Solana Blockchain

### 1. Transaction Fees:

Low and Predictable Fees: Solana is designed to handle a high throughput of transactions, which helps keep fees low and predictable. The average transaction fee on Solana is significantly lower compared to other blockchains like Ethereum.

Fee Structure: Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.

### 2. Rent Fees:

State Storage: Solana charges rent fees for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees help maintain the efficiency and performance of the network.

### 3. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This ensures that users are charged proportionally for the resources they consume.

#### **H.6 Use of distributed ledger technology**

No, DLT is neither operated by the issuer nor a third party acting on the issuer's behalf.

#### **H.7 DLT functionality description**

Not applicable.

#### **H.8 Audit**

As we are understanding the question relating to "technology" to be interpreted in a broad sense, the answer answer to whether an audit of "the technology used" was conducted is "no, we can not guarantee, that all parts of the technology used have been audited". This is due to the fact this report focusses on risk, and we can not guarantee that each part of the technology used was audited.

#### **H.9 Audit outcome**

Not applicable.

## **Part I – Information on risks**

### **I.1 Offer-related risks**

#### **1. Regulatory and Compliance**

This white paper has been prepared with utmost caution; however, uncertainties in the regulatory requirements and future changes in regulatory frameworks could potentially impact the token's legal status and its tradability. There is also a high probability that other laws will come into force, changing the rules for the trading of the token. Therefore, such developments shall be monitored and acted upon accordingly.

#### **2. Operational and Technical**

**Blockchain Dependency:** The token is entirely dependent on the blockchain the crypto-asset is issued upon. Any issues, such as downtime, congestion, or security vulnerabilities within the blockchain, could adversely affect the token's functionality.

**Smart Contract Risks:** Smart contracts governing the token may contain hidden vulnerabilities or bugs that could disrupt the token offering or distribution processes.

**Connection Dependency:** As the trading of the token also involves other trading venues, technical risks such as downtime of the connection or faulty code are also possible.

**Human errors:** Due to the irrevocability of blockchain-transactions, approving wrong transactions or using incorrect networks/addresses will most likely result in funds not being accessible anymore.

**Custodial risk:** When admitting the token to trading, the risk of losing clients assets due to hacks or other malicious acts is given. This is due to the fact the token is held in custodial wallets for the customers.

### 3. Market and Liquidity

**Volatility:** The token will most likely be subject to high volatility and market speculation. Price fluctuations could be significant, posing a risk of substantial losses to holders.

**Liquidity Risk:** Liquidity is contingent upon trading activity levels on decentralized exchanges (DEXs) and potentially on centralized exchanges (CEXs), should they be involved. Low trading volumes may restrict the buying and selling capabilities of the tokens.

### 4. Counterparty

As the admission to trading involves the connection to other trading venues, counterparty risks arise. These include, but are not limited to, the following risks:

**General Trading Platform Risk:** The risk of trading platforms not operating to the highest standards is given. Examples like FTX show that especially in nascent industries, compliance and oversight-frameworks might not be fully established and/or enforced.

Listing or Delisting Risks: The listing or delisting of the token is subject to the trading partners internal processes. Delisting of the token at the connected trading partners could harm or completely halt the ability to trade the token.

#### 5. Liquidity

Liquidity of the token can vary, especially when trading activity is limited. This could result in high slippage when trading a token.

#### 6. Failure of one or more Counterparties

Another risk stems from the internal operational processes of the counterparties used. As there is no specific oversight other than the typical due diligence check, it cannot be guaranteed that all counterparties adhere to the best market standards.

Bankruptcy Risk: Counterparties could go bankrupt, possibly resulting in a total loss for the clients assets hold at that counterparty.

### **I.2 Issuer-related risks**

#### 1. Insolvency

As with every other commercial endeavor, the risk of insolvency of the issuer is given. This could be caused by but is not limited to lack of interest from the public, lack of funding, incapacitation of key developers and project members, force majeure (including pandemics and wars) or lack of commercial success or prospects.

#### 2. Counterparty

In order to operate, the issuer has most likely engaged in different business relationships with one or more third parties on which it strongly depends on. Loss or changes in the leadership or key partners of the issuer and/or the respective counterparties can lead to disruptions, loss of trust, or project failure. This could result in a total loss of economic value for the crypto-asset holders.

#### 3. Legal and Regulatory Compliance

Cryptocurrencies and blockchain-based technologies are subject to evolving regulatory landscapes worldwide. Regulations vary across jurisdictions and may be subject to



significant changes. Non-compliance can result in investigations, enforcement actions, penalties, fines, sanctions, or the prohibition of the trading of the crypto-asset impacting its viability and market acceptance. This could also result in the issuer to be subject to private litigation. The beforementioned would most likely also lead to changes with respect to trading of the crypto-asset that may negatively impact the value, legality, or functionality of the crypto-asset.

#### 4. Operational

Failure to develop or maintain effective internal control, or any difficulties encountered in the implementation of such controls, or their improvement could harm the issuer's business, causing disruptions, financial losses, or reputational damage.

#### 5. Industry

The issuer is and will be subject to all of the risks and uncertainties associated with a memecoin-project, where the token issued has zero intrinsic value. History has shown that most of this projects resulted in financial losses for the investors and were only set-up to enrich a few insiders with the money from retail investors.

#### 6. Reputational

The issuer faces the risk of negative publicity, whether due to, without limitation, operational failures, security breaches, or association with illicit activities, which can damage the issuer reputation and, by extension, the value and acceptance of the crypto-asset.

#### 7. Competition

There are numerous other crypto-asset projects in the same realm, which could have an effect on the crypto-asset in question.

#### 8. Unanticipated Risk

In addition to the risks included in this section, there might be other risks that cannot be foreseen. Additional risks may also materialize as unanticipated variations or combinations of the risks discussed.

### **I.3 Crypto-assets-related risks**

#### **1. Valuation**

As the crypto-asset does not have any intrinsic value, and grants neither rights nor obligations, the only mechanism to determine the price is supply and demand. Historically, most crypto-assets have dramatically lost value and were not a beneficial investment for the investors. Therefore, investing in these crypto-assets poses a high risk, and the loss of funds can occur.

#### **2. Market Volatility**

Crypto-asset prices are highly susceptible to dramatic fluctuations influence by various factors, including market sentiment, regulatory changes, technological advancements, and macroeconomic conditions. These fluctuations can result in significant financial losses within short periods, making the market highly unpredictable and challenging for investors. This is especially true for crypto-assets without any intrinsic value, and investors should be prepared to lose the complete amount of money invested in the respective crypto-assets.

#### **3. Liquidity Challenges**

Some crypto-assets suffer from limited liquidity, which can present difficulties when executing large trades without significantly impacting market prices. This lack of liquidity can lead to substantial financial losses, particularly during periods of rapid market movements, when selling assets may become challenging or require accepting unfavorable prices.

#### **4. Asset Security**

Crypto-assets face unique security threats, including the risk of theft from exchanges or digital wallets, loss of private keys, and potential failures of custodial services. Since crypto transactions are generally irreversible, a security breach or mismanagement can result in the permanent loss of assets, emphasizing the importance of strong security measures and practices.

#### **5. Scams**

The irrevocability of transactions executed using blockchain infrastructure, as well as the pseudonymous nature of blockchain ecosystems, attracts scammers. Therefore, investors in crypto-assets must proceed with a high degree of caution when investing in if they invest in crypto-assets. Typical scams include – but are not limited to – the creation of fake crypto-assets with the same name, phishing on social networks or by email, fake giveaways/airdrops, identity theft, among others.

#### 6. Blockchain Dependency

Any issues with the blockchain used, such as network downtime, congestion, or security vulnerabilities, could disrupt the transfer, trading, or functionality of the crypto-asset.

#### 7. Smart Contract Vulnerabilities

The smart contract used to issue the crypto-asset could include bugs, coding errors, or vulnerabilities which could be exploited by malicious actors, potentially leading to asset loss, unauthorized data access, or unintended operational consequences.

#### 8. Privacy Concerns

All transactions on the blockchain are permanently recorded and publicly accessible, which can potentially expose user activities. Although addresses are pseudonymous, the transparent and immutable nature of blockchain allows for advanced forensic analysis and intelligence gathering. This level of transparency can make it possible to link blockchain addresses to real-world identities over time, compromising user privacy.

#### 9. Regulatory Uncertainty

The regulatory environment surrounding crypto-assets is constantly evolving, which can directly impact their usage, valuation, and legal status. Changes in regulatory frameworks may introduce new requirements related to consumer protection, taxation, and anti-money laundering compliance, creating uncertainty and potential challenges for investors and businesses operating in the crypto space. Although the crypto-asset do not create or confer any contractual or other obligations on any party, certain regulators may nevertheless qualify the crypto-asset as a security or other financial instrument under their applicable law, which in turn would have drastic consequences for the crypto-asset,

including the potential loss of the invested capital in the asset. Furthermore, this could lead to the sellers and its affiliates, directors, and officers being obliged to pay fines, including federal civil and criminal penalties, or make the crypto-asset illegal or impossible to use, buy, or sell in certain jurisdictions. On top of that, regulators could take action against the issuer as well as the trading platforms if the regulators view the token as an unregistered offering of securities or the operations otherwise as a violation of existing law. Any of these outcomes would negatively affect the value and/or functionality of the cryptot-asset and/or could cause a complete loss of funds of the invested money in the crypto-asset for the investor.

#### 10. Counterparty risk

Engaging in agreements or storing crypto-assets on exchanges introduces counterparty risks, including the failure of the other party to fulfill their obligations. Investors may face potential losses due to factors such as insolvency, regulatory non-compliance, or fraudulent activities by counterparties, highlighting the need for careful due diligence when engaging with third parties.

#### 11. Reputational concerns

Crypto-assets are often subject to reputational risks stemming from associations with illegal activities, high-profile security breaches, and technological failures. Such incidents can undermine trust in the broader ecosystem, negatively affecting investor confidence and market value, thereby hindering widespread adoption and acceptance.

#### 12. Technological Innovation

New technologies or platforms could render Solana's design less competitive or even break fundamental parts (i.e., quantum computing might break cryptographic algorithms used to secure the network), impacting adoption and value. Participants should approach the crypto-asset with a clear understanding of its speculative and volatile nature and be prepared to accept these risks and bear potential losses, which could include the complete loss of the asset's value.

#### 13. Community and Narrative

As the crypto-asset has no intrinsic value, all trading activity is based on the intended market value is heavily dependent on its community and the popularity of the memecoin narrative. Declining interest or negative sentiment could significantly impact the token's value.

#### 14. Interest Rate Change

Historically, changes in interest, foreign exchange rates, and increases in volatility have increased credit and market risks and may also affect the value of the crypto-asset. Although historic data does not predict the future, potential investors should be aware that general movements in local and other factors may affect the market, and this could also affect market sentiment and, therefore most likely also the price of the crypto-asset.

#### 15. Taxation

The taxation regime that applies to the trading of the crypto-asset by individual holders or legal entities will depend on the holder's jurisdiction. It is the holder's sole responsibility to comply with all applicable tax laws, including, but not limited to, the reporting and payment of income tax, wealth tax, or similar taxes arising in connection with the appreciation and depreciation of the crypto-asset.

#### 16. Anti-Money Laundering/Counter-Terrorism Financing

It cannot be ruled out that crypto-asset wallet addresses interacting with the crypto-asset have been, or will be used for money laundering or terrorist financing purposes, or are identified with a person known to have committed such offenses.

#### 17. Market Abuse

It is noteworthy that crypto-assets are potentially prone to increased market abuse risks, as the underlying infrastructure could be used to exploit arbitrage opportunities through schemes such as front-running, spoofing, pump-and-dump, and fraud across different systems, platforms, or geographic locations. This is especially true for crypto-assets with a low market capitalization and few trading venues, and potential investors should be aware that this could lead to a total loss of the funds invested in the crypto-asset.

#### 18. Timeline and Milestones

Critical project milestones could be delayed by technical, operational, or market challenges.

#### **I.4 Project implementation-related risks**

As this white paper relates to the "Admission to trading" of the crypto-asset, the implementation risk is referring to the risks on the Crypto Asset Service Providers side. These can be, but are not limited to, typical project management risks, such as key-personal-risks, timeline-risks, and technical implementation-risks.

#### **I.5 Technology-related risks**

As this white paper relates to the "Admission to trading" of the crypto-asset, the technology-related risks mainly lie in the settling on the Solana-Network.

##### **1. Blockchain Dependency Risks**

**Solana Network Downtime:** Potential outages or congestion on the Solana blockchain could interrupt on-chain token transfers, trading, and other functions.

**Scalability Challenges:** Despite Solana's comparatively high throughput design, unexpected demand or technical issues might compromise its performance.

##### **2. Smart Contract Risks**

**Vulnerabilities:** The smart contract governing the token could contain bugs or vulnerabilities that may be exploited, affecting token distribution or vesting schedules.

##### **3. Wallet and Storage Risks**

**Private Key Management:** Token holders must securely manage their private keys and recovery phrases to prevent permanent loss of access to their tokens, which includes Trading-Venues, who are a prominent target for dedicated hacks.

**Compatibility Issues:** The tokens require Solana-compatible wallets for storage and transfer. Any incompatibility or technical issues with these wallets could impact token accessibility.

##### **4. Network Security Risks**

Attack Risks: The Solana blockchain may face threats such as denial-of-service (DoS) attacks or exploits targeting its consensus mechanism, which could compromise network integrity.

Centralization Concerns: Although claiming to be decentralized, Solana's relatively smaller number of validators/concentration of stakes within the network compared to other blockchains and the influence of the Solana Foundation (as of 2025-03-09) might pose centralization risks, potentially affecting network resilience.

5. Evolving Technology Risks: Technological Obsolescence: The fast pace of innovation in blockchain technology may make Solana or the SPL token standard appear less competitive or become outdated, potentially impacting the usability or adoption of the token.

#### **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**

39120077M9TG001FE242

#### **S.3 Name of the cryptoasset**

Pudgy Penguins

## S.4 Consensus Mechanism

Solana uses a combination of Proof of History (PoH) and Proof of Stake (PoS). The core concepts of the mechanism are intended to work as follows:

### Core Concepts

#### 1. Proof of History (PoH):

**Time-Stamped Transactions:** PoH is a cryptographic technique that timestamps transactions, intended to creating a historical record that proves that an event has occurred at a specific moment in time.

**Verifiable Delay Function:** PoH uses a Verifiable Delay Function (VDF) to generate a unique hash that includes the transaction and the time it was processed. This sequence of hashes provides a verifiable order of events, intended to enabling the network to efficiently agree on the sequence of transactions.

#### 2. Proof of Stake (PoS):

**Validator Selection:** Validators are chosen to produce new blocks based on the number of SOL tokens they have staked. The more tokens staked, the higher the chance of being selected to validate transactions and produce new blocks.

**Delegation:** Token holders can delegate their SOL tokens to validators, earning rewards proportional to their stake while intended to enhancing the network's security.

### Consensus Process

#### 1. Transaction Validation:

Transactions are broadcasted to the network and collected by validators. Each transaction is validated to ensure it meets the network's criteria, such as having correct signatures and sufficient funds.

#### 2. PoH Sequence Generation:

A validator generates a sequence of hashes using PoH, each containing a timestamp and the previous hash. This process creates a historical record of transactions, establishing a



cryptographic clock for the network.

### 3. Block Production:

The network uses PoS to select a leader validator based on their stake. The leader is responsible for bundling the validated transactions into a block. The leader validator uses the PoH sequence to order transactions within the block, ensuring that all transactions are processed in the correct order.

### 4. Consensus and Finalization:

Other validators verify the block produced by the leader validator. They check the correctness of the PoH sequence and validate the transactions within the block. Once the block is verified, it is added to the blockchain. Validators sign off on the block, and it is considered finalized.

## Security and Economic Incentives

### 1. Incentives for Validators:

**Block Rewards:** Validators earn rewards for producing and validating blocks. These rewards are distributed in SOL tokens and are proportional to the validator's stake and performance.

**Transaction Fees:** Validators also earn transaction fees from the transactions included in the blocks they produce. These fees provide an additional incentive for validators to process transactions efficiently.

### 2. Security:

**Staking:** Validators must stake SOL tokens to participate in the consensus process. This staking acts as collateral, incentivizing validators to act honestly. If a validator behaves maliciously or fails to perform, they risk losing their staked tokens.

**Delegated Staking:** Token holders can delegate their SOL tokens to validators, intended to enhance network security and decentralization. Delegators share in the rewards and are incentivized to choose reliable validators.

### 3. Economic Penalties:

Slashing: Validators can be penalized for malicious behavior, such as double-signing or producing invalid blocks. This penalty, known as slashing, results in the loss of a portion of the staked tokens, discouraging dishonest actions.

## **S.5 Incentive Mechanisms and Applicable Fees**

### **1. Validators:**

Staking Rewards: Validators are chosen based on the number of SOL tokens they have staked. They earn rewards for producing and validating blocks, which are distributed in SOL. The more tokens staked, the higher the chances of being selected to validate transactions and produce new blocks.

Transaction Fees: Validators earn a portion of the transaction fees paid by users for the transactions they include in the blocks. This is intended to provide an additional financial incentive for validators to process transactions efficiently and maintain the network's integrity.

### **2. Delegators:**

Delegated Staking: Token holders who do not wish to run a validator node can delegate their SOL tokens to a validator. In return, delegators share the rewards earned by the validators. This is intended to encourage widespread participation in securing the network and ensures decentralization.

### **3. Economic Security:**

Slashing: Validators can be penalized for malicious behavior, such as producing invalid blocks or being frequently offline. This penalty, known as slashing, involves the loss of a portion of their staked tokens. Slashing is intended to deter dishonest actions and ensures that validators act in the best interest of the network.

Opportunity Cost: By staking SOL tokens, validators and delegators lock up their tokens, which could otherwise be used or sold. This opportunity cost is intended to incentivize participants to act honestly to earn rewards and avoid penalties.

Fees Applicable on the Solana Blockchain

#### 1. Transaction Fees:

Solana is designed to handle a high throughput of transactions, which is intended to keep the fees low and predictable.

Fee Structure: Fees are paid in SOL and are used to compensate validators for the resources they expend to process transactions. This includes computational power and network bandwidth.

#### 2. Rent Fees:

State Storage: Solana charges so called "rent fees" for storing data on the blockchain. These fees are designed to discourage inefficient use of state storage and encourage developers to clean up unused state. Rent fees are intended to help maintain the efficiency and performance of the network.

#### 3. Smart Contract Fees:

Execution Costs: Similar to transaction fees, fees for deploying and interacting with smart contracts on Solana are based on the computational resources required. This is intended to ensure that users are charged proportionally for the resources they consume.

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

2024-05-28

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

2025-05-28

### **S.8 Energy consumption**

944.50729 kWh/a

### **S.9 Energy consumption sources and methodologies**

The energy consumption of this asset is aggregated across multiple components: To determine the energy consumption of a token, the energy consumption of the network Solana is calculated first. For the energy consumption of the token, a fraction of the energy consumption of the network is attributed to the token, which is determined based on the

activity of the crypto-asset within the network. When calculating the energy consumption, the Functionally Fungible Group Digital Token Identifier (FFG DTI) is used - if available - to determine all implementations of the asset in scope. The mappings are updated regularly, based on data of the Digital Token Identifier Foundation. The information regarding the hardware used and the number of participants in the network is based on assumptions that are verified with best effort using empirical data. In general, participants are assumed to be largely economically rational. As a precautionary principle, we make assumptions on the conservative side when in doubt, i.e. making higher estimates for the adverse impacts.

#### **S.10 Renewable energy consumption**

27.0081797971 %

#### **S.11 Energy intensity**

0.00000 kWh

#### **S.12 Scope 1 DLT GHG emissions – Controlled**

0.00000 tCO<sub>2</sub>e/a

#### **S.13 Scope 2 DLT GHG emissions – Purchased**

0.32006 tCO<sub>2</sub>e/a

#### **S.14 GHG intensity**

0.00000 kgCO<sub>2</sub>e

#### **S.15 Key energy sources and methodologies**

To determine the proportion of renewable energy usage, the locations of the nodes are to be determined using public information sites, open-source crawlers and crawlers developed in-house. If no information is available on the geographic distribution of the nodes, reference networks are used which are comparable in terms of their incentivization structure and consensus mechanism. This geo-information is merged with public information from Our World in Data, see citation. The intensity is calculated as the marginal energy cost wrt. one more 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]. Ember, “Yearly Electricity Data Europe”; Ember, “Yearly Electricity Data”; Energy Institute, “Statistical Review of World Energy” [original data]. Retrieved from <https://ourworldindata.org/grapher/share-electricity-renewables>.

### **S.16 Key GHG sources and methodologies**

To determine the GHG Emissions, the locations of the nodes are to be determined using public information sites, open-source crawlers and crawlers developed in-house. If no information is available on the geographic distribution of the nodes, reference networks are used which are comparable in terms of their incentivization structure and consensus mechanism. This geo- information is merged with public information from Our World in Data, see citation. The intensity is calculated as the marginal emission wrt. one more 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]. Ember, “Yearly Electricity Data Europe”; Ember, “Yearly Electricity Data”; Energy Institute, “Statistical Review of World Energy” [original data]. Retrieved from <https://ourworldindata.org/grapher/carbon-intensity-electricity> Licenced under CC BY 4.0

