WHITE PAPER

Pell: Omnichain Restaking Network

Version 1.0, published on 27 January 2025

00 **Table of Contents**

01 DATE OF NOTIFICATION

Not applicable

COMPLIANCE STATEMENTS

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

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

04 The PELL token may lose its value in part or in full, may not always be transferable and may not be liquid.

05 Not applicable

06 The PELL token is not covered by the investor compensation schemes under Directive 97/9/EC of the European Parliament and of the Council.

The PELL token is not covered by the deposit guarantee schemes under Directive 2014/49/EU of the European Parliament and of the Council.

SUMMARY

07 Warning

This summary should be read as an introduction to the crypto-asset white paper.

The prospective holder should base any decision to purchase PELL on the content of the crypto-asset white paper as a whole and not on the summary alone.

The offer to the public of PELL does not constitute an offer or solicitation to purchase financial instruments and any such offer or solicitation can be made only by means of a prospectus or other offer documents pursuant to the applicable national law.

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

08 Characteristics of the Crypto-Asset

The PELL token ($PELL) is the native crypto-asset on the Pell Network ecosystem, classified under Title II of MiCAR as a crypto-asset distinct from asset-referenced tokens (ART) or e-money tokens (EMT).

PELL token has a total supply of 2,100,000,000. There will be no more future issuance of PELL token beyond the total supply, unless determined necessary by the collective vote of PELL token holders on Pell Network's governance forum.

PELL token holders are granted several rights within the ecosystem. They can actively participate in network governance by voting on key decisions that shape the network's future. The token serves as the gas for transaction fees on Pell Chain and allows holders to stake for running network nodes or listing Decentralized Validated Services (DVS).

09 Not applicable

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

$PELL total offer amount	USD 1,500,000 (one million five hundred thousand US dollars)
$PELL total number of tokens to be offered to the public	63,000,000
Subscription period	28 January 2025 – 30 January 2025
Issue price	USD 0.0238
Subscription fees (if any)	Not applicable
Target holders of tokens	Retail and professional investors
Description of offer phases	One single round of public sale
CASP responsible for placing the token (if any)	Not applicable
Form of placement	With a firm commitment basis

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

A.1. Name

EquationX Ltd.

A.2. Legal Form

6EH6 – Limited Liability Company
ISO standard 20275 'Financial Services – Entity Legal Forms (ELF)'

A.3. Registered Address

VG (ISO 3166-1 alpha-2)

OMC Chambers, Wickhams Cay 1, Road Town, Tortola, British Virgin Islands

A.4. Head Office

VG (ISO 3166-1 alpha-2)

OMC Chambers, Wickhams Cay 1, Road Town, Tortola, British Virgin Islands

A.5. Registration Date

2024-04-25

A.6. Legal Entity Identifier

Not applicable

A.7. Another Identifier Required Pursuant to Applicable National Law

2147279

A.8. Contact Telephone Number

Not Applicable

A.9. E-mail Address

hi@pell.network

A.10. Response Time (Days)

002

A.11. **Parent Company**

Not applicable

A.12. **Members of the Management Body**

Full Name	Business Address	Function
Steven Shen	Singapore	Cofounder, in charge of technical architecture and development
Makoto Uramura	Singapore	Cofounder, in charge of fundraising, business development and ecosystem growth
Tyler Wu	Singapore	Cofounder, in charge of institutional partnership and strategy

A.13. **Business Activity**

Developing innovative software solutions and digital applications tailored to meet the evolving needs of businesses globally.

A.14. **Parent Company Business Activity**

Not applicable

A.15. **Newly Established**

'True' – Yes

A.16. **Financial Condition for the Past Three Years**

EquationX Ltd. raised USD 3 million from private investors in October 2024.

A.17. **Financial Condition since Registration**

Not applicable

Part B – Information about the issuer

B.1. **Issuer Different from Offeror**

'False' – No

Part C – Information about the operator of the trading platform

Not applicable

Part D – Information about the crypto-asset project

D.1. Crypto-Asset Project Name

Pell Network

D.2. Crypto-Assets Name

PELL Token

D.3. Abbreviation

$PELL

D.4. Crypto-Asset Project Description

As the blockchain ecosystem continues to evolve, the demand for secure, scalable, and decentralized infrastructure grows. Pell Network is designed to address this need by creating an omnichain restaking network that aggregates BTC and EGLD staking and liquid staking tokens (LST) restaking services. This enables cryptoeconomic security across blockchains, supporting decentralized validated service (DVS) and fostering the growth of the BTC and EGLD ecosystems.

Pell Network leverages cryptoeconomic security to deliver multi-layered and multifunctional services. These include supporting a wide range of protocols, applications, and infrastructure, ensuring participants benefit from a robust and sustainable decentralized network.

Pell Network has built an Omnichain Decentralized Validated Service Network driven by BTC and EGLD restaking to offer cryptoeconomic security and unlock BTC and EGLD's security potential. Pell enhances capital efficiency for stakers and provides developers with an efficient, secure, and affordable way to build decentralized validated services.

Extending BTC into the Cryptoeconomic Security Domain

Pell Network expands BTCFi's capabilities by integrating Bitcoin into the cryptoeconomic security domain. This allows stakers to maximize capital efficiency while enabling developers to acquire the cryptoeconomic security needed to build their own validated service networks. By doing so, Pell unlocks

Bitcoin's untapped potential, enhancing its impact across decentralized ecosystems.

Layered Modular Architecture for a Streamlined Experience

Through the abstraction of the restaking layer, Pell delivers a seamless user experience across diverse blockchain ecosystems, eliminating the need for RPC node configuration or cross-chain asset bridging.

- **Unified Restaking Standard:** Pell standardizes restaking across blockchains.
- **Multi-VM Support:** With support for EVM, MoveVM, and beyond, developers can adopt a "develop once, deploy everywhere" approach.
- **Modular Design:** Modular architecture simplifies integration, reduces maintenance complexity, and accelerates the large-scale adoption of BTC-powered decentralized applications (dApps).

Integrating Omnichain Cryptoeconomic Security

Pell's omnichain communication architecture synchronizes cryptoeconomic security across multiple blockchain networks. This integration provides robust validator networks and maximum security guarantees, establishing a reliable foundation for decentralized validated services.

Omnichain Restaking

In essence, Pell Network enables users to stake BTC LSTs across any blockchain and facilitates DVS to deliver full-chain cryptoeconomic security services across multiple blockchains. The architecture of Pell Network is composed of three core layers:

Staking Layer:

The Staking Layer powers Pell Network's restaking capabilities across a wide range of blockchains, including EVM-compatible chains, Solana, Move-based chains, and more. Through the staking layer contracts, users (restakers) can seamlessly perform essential staking operations such as deposits, delegation, undelegation, and withdrawals on any smart contract-enabled blockchain. User assets are securely locked within these contracts, with the underlying blockchain providing decentralized security guarantees. In cases where slashing penalties occur on the DVS assets staked by users, Pell Network enforces penalties in a decentralized and transparent manner via its blockchain, with actual penalty settlements executed at the Staking Layer.

Pell Chain:

As the backbone of the network, Pell Chain serves as a hub for aggregating staking data from the Staking Layer and synchronizing it with the Service Layer. It provides the essential security infrastructure needed to power DVS. Moreover, Pell Chain acts as the central coordination and management platform for both Operators and DVS, ensuring seamless and efficient network-wide operations.

Service Layer:

The Service Layer delivers a robust security foundation for the services provided by DVS. Developers can deploy BTC restaking services on the service chain by utilizing the foundational smart contracts offered by Pell Network. Through its full-chain transaction mechanism, Pell Network integrates staking data and weight parameters from the Staking Layer into the Service Layer. This integration strengthens the reliability and security of the services offered within the ecosystem.

By interconnecting these layers, Pell Network achieves a decentralized, secure, and transparent multi-chain architecture. It supports BTC LST staking and enables DVS to provide comprehensive cryptoeconomic security services, driving innovation in the omnichain ecosystem.

Technology

Pell Network leverages blockchain technology with a focus on BTC and EGLD's cryptoeconomic security, augmented by an omnichain restaking framework. This design allows BTC, its LSTs and EGLD to extend security and utility across multiple blockchain ecosystems.

The network incorporates a specialized consensus mechanism that complements Bitcoin's Proof of Work (PoW) foundation by integrating restaking for enhanced decentralized security. This enables BTC holders to secure DVS without the need for additional infrastructure, reducing complexity and costs.

Scalability and performance are addressed through a multi-layer architecture, including a decentralized restaking ledger (Pell Chain) and an execution layer for efficient service validation. By providing a robust cross-chain interoperability protocol, Pell Network ensures security while maintaining high throughput and reduced latency. These considerations establish Pell as a scalable, secure, and high-performance solution for integrating BTC and EGLD with diverse blockchain ecosystems.

D.5. Details of All Natural or Legal Persons Involved in the Implementation of the Crypto-Asset Project

Full Name	Business Address	Function

Steven Shen	Singapore	Cofounder, in charge of technical architecture and development
Makoto Uramura	Singapore	Cofounder, in charge of fundraising, business development and ecosystem growth
Tyler Wu	Singapore	Cofounder, in charge of institutional partnership and strategy

D.6. Utility Token Classification

'False' - No

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

Not applicable

D.8. Plans for the Token

Since its conceptualisation in early 2024, Pell Network has crafted a clear roadmap. Over the course of its development, Pell has crossed numerous milestones. Key highlights are summarised in the diagram below.

Looking ahead, Pell will continue to build on its strength and set eyes on long term goals:

- Expand Ecosystem Integration: Support more blockchain ecosystems,

including BTC, EVM-compatible chains, and non-EVM platforms like Solana and NEAR.
- Achieve Scalability and Security Leadership: Position Pell as the go-to solution for scalable and secure decentralized services using restaked BTC and EGLD.
- Increase Adoption and Total Value Locked (TVL): Drive widespread adoption of restaking and grow TVL in the ecosystem.
- Foster Decentralization: Develop a fully decentralized governance model, empowering the community to guide Pell's future.
- Monetize and Sustain: Introduce revenue-generating models through premium services or strategic partnerships to ensure long-term sustainability.
- Global Recognition: Establish Pell as a leader in leveraging BTC for advanced decentralized solutions across multi-chain environments.

D.9. Resource Allocation

Not applicable

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

Product Development (35-40%)

- Further development of the Pell Chain and Restaking Protocol.
- Enhancements to cross-chain interoperability features and support for additional blockchains.
- Implementation of advanced security measures to safeguard restaking operations.

Team Expansion (20-25%)

- Recruitment of skilled blockchain developers, protocol engineers, and security experts.
- Expansion of business development, marketing, and community management teams to support growth and partnerships.

Marketing and Ecosystem Growth (15-20%)

- Community-building initiatives to onboard stakers and developers.
- Educational campaigns to raise awareness about restaking and its benefits.
- Strategic partnerships with blockchain ecosystems and DeFi platforms.

Operational Expenses (10-15%)

- Day-to-day operational costs, including office space, equipment, and software tools.
- Legal, compliance, and administrative costs for operating across multiple jurisdictions.

Reserve and Contingencies (10-15%)

- Maintenance of a reserve fund to address unexpected challenges, such as market volatility or security threats.
- Flexibility for scaling or pivoting based on market conditions and feedback.

If Pell's fundraising target isn't met, it will:

- Prioritize Essentials: Focus on critical components like the Restaking Protocol and interoperability, deferring non-essential features.
- Reduce Costs: Scale down operations, delay hiring, or switch to a lean remote team structure.
- Seek Alternatives: Explore grants, smaller funding rounds, or community crowdfunding campaigns.
- Leverage Partnerships: Collaborate with protocols to share infrastructure and reach users.

Part E – Information about the offer to the public of crypto-assets

E.1. Public Offering or Admission to Trading

'OTPC' - offer to the public

E.2. Reasons for Public Offer

The public offering of PELL tokens aims to accelerate product development, enhance team capacity, and foster ecosystem growth.

A significant portion of the funds raised (35–40%) will be allocated to further developing the Pell Chain and Restaking Protocol, including improving cross-chain interoperability and implementing advanced security measures.

Another 20–25% will support team expansion, focusing on hiring skilled blockchain developers, protocol engineers, and security experts, as well as bolstering business development, marketing, and community management efforts. Additionally, 15–20% of the funds will be dedicated to marketing and ecosystem growth.

E.3. Fundraising Target

USD 1,500,000

E.4. Minimum Subscription Goals

Not applicable

E.5. Maximum Subscription Goal

USD 1,500,000

E.6. **Oversubscription Acceptance**

'False' – No

E.7. **Oversubscription Allocation**

Not applicable

E.8. **Issue Price**

USD 0.0238

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

USD

E.10. **Subscription Fee**

Not applicable

E.11. **Offer Price Determination Method**

The offer price of USD 0.0238 is obtained from dividing the Fully Diluted Valuation of the token (USD 50,000,000) by the total supply of tokens, which is 2,100,000,000.

This offer price determination is consistent with the public sale parameters:

- Total supply: 2,100,000,000 PELL tokens
- Public sale allocation: 63,000,000 PELL tokens (3%)
- Total offer amount: USD 1,500,000

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

1

E.13. **Targeted Holders**

ALL

E.14. **Holder Restrictions**

Persons or entities subject to mandatory sanctions or other restrictive measures pursuant to the applicable regulations, may not be token holders.

E.15. **Reimbursement Notice**

Purchasers participating in the offer to the public of crypto-asset will be able to be reimbursed if the minimum target subscription goal is not reached at the end of the offer to the public, if they exercise the right to withdrawal provided for in Article 13 of Regulation (EU) 2023/1114 of the European Parliament and of the Council or if the offer is cancelled.

E.16. **Refund Mechanism**

The refund mechanism is detailed in Terms of Sale document of the public sale.

E.17. **Refund Timeline**

The refund will be executed without undue delay and in any event no later than 72 hours from the date on which the refund request is received.

E.18. **Offer Phases**

One single round of public sale.

E.19. **Early Purchase Discount**

Not applicable

E.20. **Time-Limited Offer**

‘True’ – Yes

E.21. **Subscription Period Beginning**

2025-01-28.

E.22. **Subscription Period End**

2025-01-30.

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

During the subscription period, all collected crypto-assets are secured through a smart contract.

E.24. **Payment Methods for Crypto-Asset Purchase**

The purchase shall be made exclusively in EGLD.

E.25. **Value Transfer Methods for Reimbursement**

Reimbursements will be handled via smart contracts. In the event that purchasers are entitled to a refund, the smart contract will transfer the value back to the wallet addresses from which the contributions were initially received. Reimbursements will be made in the same token as the original contribution—EGLD.

E.26. **Right of Withdrawal**

During the subscription period of January 28-30, 2025, retail holders will have the right to withdraw their participation in the PELL token offering through a dedicated withdrawal link as described in the Terms of Sale document of the public sale.

All payments received from retail holders, including any applicable charges, will be reimbursed without undue delay and will be processed within 72 hours of the withdrawal request. The reimbursement will be carried out using the same means of payment as the initial subscription, unless the retail holder expressly agrees otherwise and provided that the retail holder does not incur any fees as a result of such reimbursement.

This withdrawal window is strictly limited to the subscription period, and no withdrawal rights will be available once the subscription period ends on January 30.

E.27. **Transfer of Purchased Crypto-Assets**

Participants who purchase PELL lottery tickets during the subscription period (January 28–30) and win in the lottery (results announced on January 31) will have their winning tickets processed in February (TBD).

During this phase, holders of winning lottery ticket holders can claim their allocated PELL tokens by providing their designated wallet addresses. Participants with non-winning tickets are entitled to reclaim their EGLD contributions. The smart contract system automates both the PELL token distribution and EGLD refund processes, ensuring secure and verifiable transactions.

E.28. **Transfer Time Schedule**

February (TBD): Winning ticket holders will receive their PELL tokens directly into their provided wallet addresses.

E.29. **Purchaser's Technical Requirements**

Digital wallet: Purchasers must have a compatible digital wallet that supports MultiversX (e.g., xPortal).

Private key management: Purchasers are responsible for securely storing their private keys to ensure access to their digital wallet.

Network fees: Purchasers should own a small amount of EGLD to cover transaction fees on MultiversX.

E.30 **Crypto-Asset Service Provider (CASP) Name**

Not applicable.

E.31. **CASP Identifier**

Not applicable.

E.32. **Placement Form**

'WITH' - with a firm commitment basis

E.33. **Trading Platforms Name**

Not applicable.

E.34. **Trading Platforms Market Identifier Code (MIC)**

Not applicable.

E.35. **Trading Platforms Access**

Not applicable.

E.36. **Involved Costs**

Not applicable.

E.37. **Offer Expenses**

Not applicable

E.38. **Conflicts of Interest**

No conflict of interests has been identified as of today.

E.39. **Applicable Law**

Laws of British Virgin Islands.

E.40 **Competent Court**

Hong Kong International Arbitration Centre ('HKIAC'), except where provided otherwise by the Applicable Law.

Part F – Information about the crypto-assets

F.1. Crypto-Asset Type

$PELL Token falls under Title 2 of MiCAR, being a multi-functional crypto-asset, other than asset-referenced token (ART) and e-money token (EMT).

F.2. Crypto-Asset Functionality

The PELL token's utility is built on extensive research and proven technologies. The ecosystem is designed to scale as both the utility and usage of the Pell Network ecosystem grow. Through its built-in governance protocol, the network can adapt, and upgrade based on the needs of its participants, ensuring the continued functionality and public benefit of Pell Network.

The PELL token serves several core functions within the Pell Network ecosystem:

- **Gas for Pell Chain:** The protocol distributes fixed block rewards and incentives in PELL to validators. These incentives (and slashing mechanisms) underpin the proof-of-stake blockchain that secures the protocol.

- **Secure the PoS Blockchain/System:** Validators stake PELL, and users can delegate PELL to validators to earn block emissions. Transaction fees (gas) paid in PELL are distributed among validators, delegators, and other network participants in the proof-of-stake system, helping protect against spam and DDoS attacks.

- **Function as a Cross-chain Intermediary:** For cross-chain transactions, users attach PELL to their messages to represent value and pay for all gas and transaction fees in one bundle. During cross-chain messaging, PELL is burned at the source and minted at the destination, serving as a **medium** for value transfer between connected chains without creating new wrapped assets.

- **Approve Networks and Assets:** Participants use PELL to assess and approve new networks and assets, ensuring compatibility and alignment with the protocol's objectives.

- **Stake for Pell Node and DVS Listing:** Operators need to stake PELL token to run Pell nodes. DVS need to stake PELL token to be listed in order to consume cryptoeconomic security provided by Pell Network.

- **Pay for Rented Cryptoeconomic Security:** For applications or infrastructure without their own tokens, PELL token will be the best choice for paying for the cryptoeconomic security consumed.

- **Resolve Disputes**: PELL holders help maintain fairness across the ecosystem by resolving disputes among Delegators, Managers, and Networks.
- **Drive Decisions**: PELL can also be used to suggest key updates, integrations, or refinements to improve the protocol's structure and operations.

Pell Network will continuously explore and expand PELL token's utility in the future to ensure value capture and incentive alignment between token holders and network development.

F.3. Planned Application of Functionalities

See the road map.

F.4. Type of White Paper

OTHR

F.5. The Type of Submission

NEWT

F.6. Crypto-Asset Characteristics

The PELL token qualifies as a crypto-asset under MiCAR Title II, excluding classifications as an asset-referenced token or e-money token. As the native crypto-asset of the Pell Network, it has a fixed maximum supply of 2,100,000,000 tokens.

The token implements standard technical features including transferability between blockchain addresses and compatibility with non-custodial wallets. It operates on the Pell Network's distributed ledger using a Proof-of-Stake consensus mechanism.

F.7. Commercial Name or Trading Name

Pell Network

F.8. Website of the Issuer

https://pell.network/

F.9. Starting Date of Offer to the Public

2025-01-28

F.10. **Publication Date**

2025-01-27

F.11. **Any Other Services Provided by the Issuer**

Not applicable

F.12. **Identifier of Operator of the Trading Platform**

Not applicable

F.13. **Language or Languages of the White Paper**

English

F.14. **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**

Not applicable

F.15. **Functionally Fungible Group Digital Token Identifier**

Not applicable

F.16. **Voluntary Data Flag**

‘True – voluntary

F.17. **Personal Data Flag**

‘True’ – Yes

F.18. **LEI Eligibility**

‘True – eligible

F.19. **Home Member State**

Not applicable

F.20. **Host Member States**

Not applicable

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

G.1. Purchaser Rights and Obligations

Purchaser Rights

Purchasers of $PELL tokens gain the right to access and use certain features and functionalities within the ecosystem, including specific use cases such as governance voting, staking as delegators and gaining rewards from securing the network, staking for running network nodes or listing Decentralized Validated Services (DVS), etc.

Purchaser Obligations

Purchasers must agree to abide by the terms of service, user agreements, and any rules or protocols governing the use of $PELL tokens within the ecosystem.

Purchasers are solely responsible for properly storing, securing, and managing their $PELL tokens. This includes safeguarding private keys and adhering to best practices for crypto-asset storage and custody.

Prior to purchasing $PELL tokens, participants may be required to fulfil certain know-your-customer (KYC) and anti-money laundering (AML) compliance measures. Completing these steps is an obligation of purchasers to meet regulatory standards.

G.2. Exercise of Rights and Obligations

Token holders can exercise their rights by connecting their compatible non-custodial digital wallets to the restaking platform. The exercise of all rights is governed by and must comply with the provisions set forth in the Terms of Service.

G.3. Conditions for Modifications of Rights and Obligations

The issuer reserves the right to modify the rights and obligations associated with $PELL tokens under conditions that may arise from regulatory, technical, or operational necessities.

G.4. Future Public Offers

No additional public offerings of $PELL tokens are currently planned. Should the need for future offerings arise, they will be conducted transparently and in compliance with MiCAR.

G.5. Issuer Retained Crypto-Assets

The issuer and team will retain control over the following allocations of PELL tokens:

Team Allocation: 315,000,000 PELL tokens (15% of total supply)

- 0% at TGE
- 2% unlocked after 6 months cliff
- Remaining 98% released linearly over 30 months

DAO Treasury: 483,000,000 PELL tokens (23% of total supply)

- 13.04% unlocked at TGE
- Remaining released linearly over 36 months

Ecosystem Growth: 462,000,000 PELL tokens (22% of total supply)

- 9.09% unlocked at TGE
- Remaining released linearly over 36 months

These retained allocations total 1,260,000,000 PELL tokens (60% of total supply), with specific vesting schedules designed to ensure long-term alignment with the project's development.

G.6. Utility Token Classification

'False' – 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

'False' – not sought

G.10. Crypto-Assets Purchase or Sale Modalities

Pell Network is considering seeking admission to trading of the PELL token on several exchanges including Bybit, Bitget, Gate, Bitpanda, MEXC, BingX, etc., subject to the approval by the exchanges.

G.11. Crypto-Assets Transfer Restrictions

There are no such restrictions.

G.12. Supply Adjustment Protocols

'True' – Yes

G.13. Supply Adjustment Mechanisms

PELL token has a total supply of 2,100,000,000. There will be no more future issuance of PELL token beyond the total supply, unless determined necessary by the collective vote of PELL token holders on Pell Network's governance forum.

G.14. Token Value Protection Schemes

'False' – No

G.15. Token Value Protection Schemes Description

Not applicable

G.16. Compensation Schemes

'False' – No

G.17. Compensation Schemes Description

Not applicable

G.18. Applicable Law

Laws of British Virgin Islands.

G.19. Competent Court

Hong Kong International Arbitration Centre ('HKIAC'), except where provided otherwise by the Applicable Law.

Part H – Information on the underlying technology

H.1. Distributed Ledger Technology

Distributed Ledger Technology ('**DLT**') refers to a digital system for recording transactions in which the transactions and their details are recorded in multiple places at the same time. Unlike traditional databases, distributed ledgers have no central data store or administration functionality. Instead, the ledger is decentralized, and consensus on the transactions is achieved through a process that involves multiple nodes, each maintaining its own copy of the ledger.

H.2. Protocols and Technical Standards

Pell Network is the first Omnichain Restaking Network. By building an Omnichain Decentralized Validated Service (DVS) Network driven by BTC and EGLD restaking, Pell offers cryptoeconomic security, unlocks BTC and EGLD's security potential, enhances capital efficiency for stakers, and provides developers with an efficient, secure, and affordable way to validate services.

Underpinned by its proprietary layered modular architecture, Pell Network delivers a seamless user experience across diverse blockchain ecosystems, eliminating the need for remote procedure call (RPC) node configuration or cross-chain asset bridging.

H.3. Technology Used

Pell Network leverages blockchain technology with a focus on BTC and EGLD's cryptoeconomic security, augmented by an omnichain restaking framework. This design allows BTC, its LSTs and EGLD to extend security and utility across multiple blockchain ecosystems.

The network incorporates a specialized consensus mechanism that complements Bitcoin's Proof of Work (PoW) foundation by integrating restaking for enhanced decentralized security. This enables BTC holders to secure DVS without the need for additional infrastructure, reducing complexity and costs.

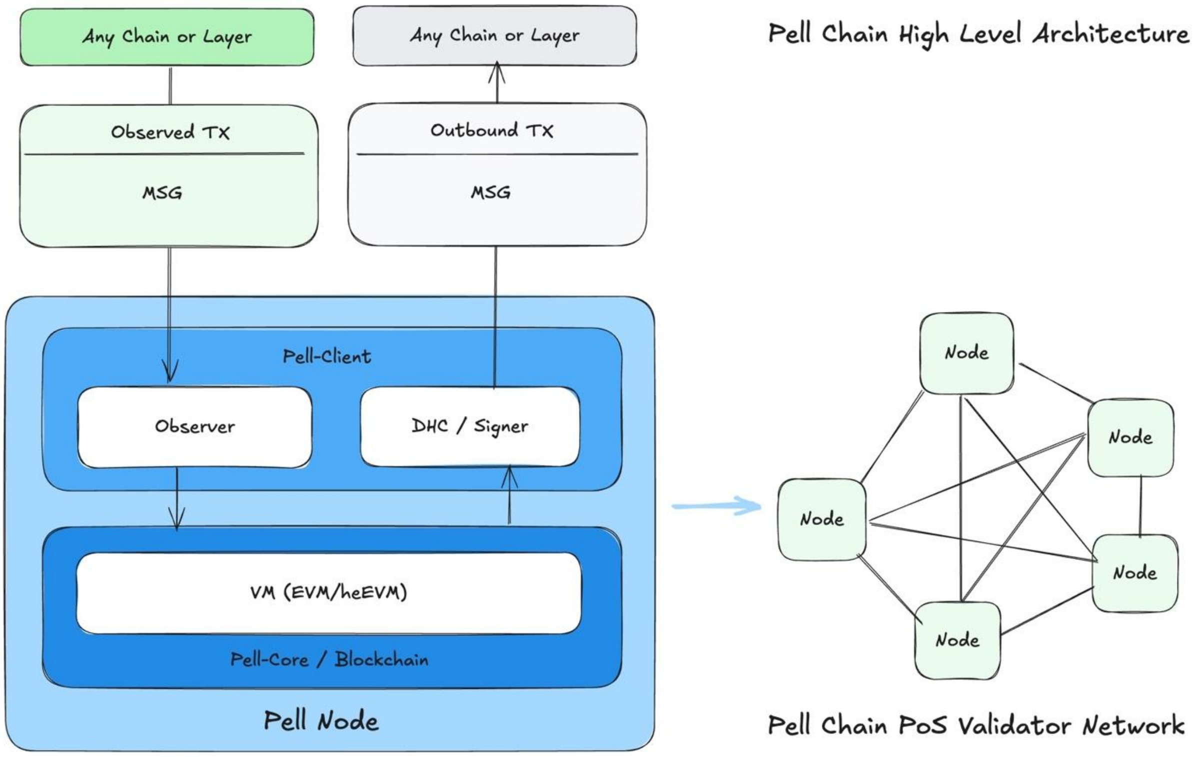
Scalability and performance are addressed through a multi-layer architecture, including a decentralized restaking ledger (Pell Chain) and an execution layer for efficient service validation. By providing a robust cross-chain interoperability protocol, Pell Network ensures security while maintaining high throughput and reduced latency. These considerations establish Pell as a scalable, secure, and high-performance solution for integrating BTC and EGLD with diverse blockchain ecosystems.

H.4. Consensus Mechanism

The network incorporates a specialized consensus mechanism that complements Bitcoin's Proof of Work (PoW) foundation by integrating restaking for enhanced decentralized security.

Pell Chain Overview: A Decentralized and Secure Cross-Chain Network

Pell Chain operates on a distributed network of Operators, who play a pivotal role in maintaining the chain's consensus and facilitating cross-chain communication. These operators are responsible for validating transactions, preserving the state of the Pell Chain, and securely updating the states of external blockchains. Designed to function in a decentralized, trustless, and permissionless manner, Pell Chain eliminates single points of failure and ensures transparency throughout the network. A diagrammatic representation of Pell Chain's architecture is shown below.



Each Operator within Pell Chain consists of two core components: **PellCore** and **PellRelayer**.

- **PellCore** serves as the validator module, tasked with block production, securing consensus, and maintaining the replicated state of the Pell blockchain.
- **PellRelayer**, on the other hand, handles cross-chain operations critical to Pell's interoperability with other blockchains. It is further divided into two functional subcomponents:
  - **Observer**: Manages inbound transactions by monitoring external blockchains for relevant events, such as staking updates, slashing penalties, and rewards. The Observer ensures these events are accurately synchronized with the Pell Chain.
  - **Signer**: Oversees outbound transactions by securely signing cross-chain messages, ensuring all transactions are executed in a decentralized and trustworthy manner.

These components operate in unison within each Operator's node. To become an Operator, individuals or entities must stake a sufficient bond, thereby contributing to the network's decentralization and security.

This robust architecture empowers Pell Chain to deliver secure, efficient, and transparent cross-chain communication while upholding the highest standards of decentralization and network security.

Observer

The **Observer** in Pell Chain is responsible for monitoring external blockchains to capture relevant events, ensuring that Pell Chain remains in sync with the state of these chains. It works by continuously scanning external blockchains through its own full node, watching for specific events such as changes in staking data, slashing penalties, and reward distributions. These events are essential for maintaining Pell Chain's integrity and ensuring that all cross-chain data is properly reflected within the Pell ecosystem.

Once the Observer identifies a relevant event on an external blockchain, it captures the necessary details and submits them to Pell Chain. This includes the event data itself, such as transaction information and block details, along with a Merkle Proof to verify the authenticity and integrity of the event. The Observer's role here is to ensure that the event is properly recorded and its validity is guaranteed before it is processed on Pell Chain.

After submitting the event, it enters a consensus process on Pell Chain. This step involves validators reviewing and confirming the event. To do so, the Observer initiates a **VoteBlock** transaction, which includes the event and Merkle Proof, and submits it to Pell Chain for validation. Only after the required number of votes is reached does the event become finalized. Once the event is confirmed, Pell Chain's logic is triggered, which may involve updating the state of staking, delegations, rewards, or slashing penalties in response to the observed event.

The finalization of the event ensures that Pell Chain's state is consistent with the external blockchain's state. The Observer's task is complete once the event has been processed and the relevant logic executed on Pell Chain. By doing so, the Observer ensures that Pell Chain reflects real-time changes occurring on connected blockchains, maintaining synchronization and the accurate representation of cross-chain data. This enables Pell Chain to operate securely and transparently while remaining aligned with the broader decentralized ecosystem.

Signer

The **Signer** module in Pell Chain is responsible for securely managing the signing process of outbound transactions, ensuring that communication with external blockchains is both secure and decentralized. Pell Chain employs the **Dynamic Hidden Committee (DHC)** mechanism to manage private keys for interactions with different external chains. Each external chain that Pell interacts with is assigned a **separate Dynamic Hidden Committee**, responsible for key management and signing transactions for that specific chain.

The **DHC** mechanism in Pell Chain works by creating a committee of **multiple validators**, each holding a part of the private key required for cross-chain transactions. These committees are dynamically formed, ensuring that at no point does any single validator or node have full access to the private key. This decentralization of key management enhances the security of outbound transactions, as the key is never stored in one location, preventing any single point of failure.

Pell Chain uses the **Ring VRF** (Verifiable Random Function) to randomly select committee members for each external chain. This ensures that committee membership is both private and random, with no node able to predict which validators will be selected for key signing. The **Ring VRF** algorithm guarantees the **randomness** and **privacy** of committee assignments, preventing targeted attacks or collusion among nodes. Furthermore, no node within a committee is aware of the identity of the other members, ensuring the **unawareness** principle, which prevents any unauthorized coordination or manipulation of the signing process.

The signing process itself is carried out using a **Threshold Signature Scheme (TSS)**, where the private key is divided into shares across multiple nodes. **Multi-Party Computation (MPC)** is used to generate the private key and perform the signing, ensuring that no single node can fully reconstruct the private key or sign messages on its own. This process is leaderless, meaning no single validator can dominate the signing process. It is also **fault-tolerant**, with the system capable of adding new nodes to the committee if any nodes go offline or crash, ensuring continuous availability of the key signing process.

The steps involved in the **Signer** module process are as follows:

- **Committee Formation**:

Pell Chain establishes a separate **Dynamic Hidden Committee** for each external chain it interacts with. This committee is responsible for managing the private key and signing transactions for that specific chain.

- **Committee Member Selection**:

Using the **Ring VRF** algorithm, Pell Chain randomly selects committee members from a pool of validators. This process ensures **randomness**, **privacy**, and **fairness** in committee formation, preventing any single node from predicting or manipulating the selection process.

- **Key Management**:

The private key is divided into shares, distributed across the members of the committee. **Multi-Party Computation (MPC)** is employed to generate and manage the private key, ensuring that no single node has full access to it at any point in time.

- **Transaction Signing**:

When an outbound transaction needs to be signed, the committee members collaborate to sign the transaction using the distributed private key. The signing process is done in a decentralized manner, ensuring no single node can sign a transaction without the consent of others.

- **Fault Tolerance and Key Updates**:

If any nodes within the committee become unavailable or crash, the system automatically introduces new nodes into the committee. The new nodes generate new key shares through a **key handover protocol**, ensuring the continuity and security of the key management process.

- **Periodic Re-selection**:

To enhance security, Pell Chain periodically re-selects committee members. This helps maintain the integrity of the DHC and prevents long-term exposure to any single group of validators, making the system more resilient to attacks.

- **Efficient Signing**:

Pell Chain employs **batched signing** and **parallel signing** techniques to improve the throughput and efficiency of cross-chain transactions. This ensures that outbound transactions are processed quickly, without compromising security.

In summary, Pell Chain's **Signer** module utilizes a **Dynamic Hidden Committee (DHC)** mechanism, ensuring that key management and signing processes are decentralized, private, and secure. By randomly selecting committee members for each external chain, and leveraging **Threshold Signature Scheme (TSS)** and **Multi-Party Computation (MPC)**, Pell Chain ensures that no single validator has control over the private key or signing process. This decentralized and secure approach to signing outbound transactions guarantees that Pell Chain can securely interact with external blockchains while maintaining a high level of security and fault tolerance.

Security

Programmable trust based on cryptoeconomic security

In Pell, **security** is defined as the ability to prevent malicious actors from successfully compromising the system, where the cost of malicious actions far outweighs the potential rewards. The key principle behind this is ensuring that the **Cost-of-Corruption (CoC)** is much higher than the **Profit-from-Corruption (PfC)**. The **Cost-of-Corruption** represents the total cost an adversary must incur to manipulate or compromise the system, while the **Profit-from-Corruption** represents the potential gains they could achieve from such actions.

A crucial factor in determining the **Cost-of-Corruption** is the **traceability** or **attributability** of malicious actions. The more easily a malicious act can be traced back to the perpetrator, the higher the cost associated with it. If an action is easily attributable, the actor can be penalized, either through slashing their collateral or other forms of punishment, making it much harder for the attacker to profit from the act.

When it comes to **attributability**, there are two main types to consider. One is **objective attribution**, which refers to actions that are clearly and definitively traceable based on observable data. For example, in a blockchain system, if a node behaves maliciously, the event can be recorded in a transparent, immutable ledger, making it easy to link the action to the actor responsible. This kind of clear attribution ensures that the **Cost-of-Corruption** remains high, as the malicious behaviour can be directly identified and punished.

On the other hand, there is **intersubjective attribution**, which involves actions that are harder to trace directly through data alone and often require collective agreement or judgment. This could be the case when a malicious action is not immediately visible or observable, requiring deeper analysis or consensus among participants to identify the responsible party. In these scenarios, the **Cost-of-Corruption** is harder to assess, as the attribution is based more on interpretation and agreement than on clear evidence.

In Pell, the primary goal is to ensure that malicious actors cannot easily profit from their actions. This is achieved by making malicious behaviour costly and by ensuring that the system has the tools to attribute actions effectively. When **objective attribution** is possible, the cost of malicious behaviour is high, as it can be immediately traced and penalized. For cases of **intersubjective attribution**, Pell seeks to reduce uncertainty by implementing mechanisms that help mitigate ambiguity and ensure that malicious actions are still detected and addressed.

H.5. Incentive Mechanisms and Applicable Fees

Pell Network aims to create a decentralized cryptoeconomic security leasing platform for the BTC and EGLD ecosystem. By constructing a network that aggregates native BTC staking and LST restaking services, it allows stakers to choose to validate new software modules built upon the Pell Network ecosystem. Stakers opt-in by granting Pell Network smart contracts the ability to impose additional slashing conditions on their staked assets, thereby allowing for the expansion of cryptoeconomic security.

Pell Network serves as an entry point into the security aspects of the Bitcoin and MultiversX networks, providing a multi-layered, multifunctional service network for a wide range of ecosystem protocols, applications, and infrastructure, thereby extending the economic utility of BTC and EGLD on a security vector. Stakers can validate various types of modules, including consensus protocols, data availability layers, virtual machines, guardian networks, oracle networks, bridges, threshold encryption schemes, and trusted execution environments. Through Pell Network, innovators do not need to establish their own trust networks to implement new distributed validation modules; instead, they can quickly and cost-effectively establish corresponding high-security, decentralized validation modules via Pell Network.

Pell Network does not disperse security among modules but rather aggregates Bitcoin's security across all modules. This enhances the security of decentralized applications that rely on these modules. Additionally, it provides diverse staking and investment opportunities for ecosystem participants, helping to promote the economic circulation system of the Bitcoin and MultiversX ecosystems and creating more value for BTC and EGLD holders and ecosystem participants, thereby fostering the vitality and sustainable development of the entire crypto economy.

H.6. Use of Distributed Ledger Technology

‘True’ – Yes, DLT operated by the issuer

H.7. DLT Functionality Description

Pell Network operates on a three-layer distributed ledger architecture:

Staking Layer

- Facilitates restaking operations across multiple blockchains (EVM-compatible, Solana, Move-based)
- Manages staking operations including deposits, delegation, undelegation, and withdrawals
- Enforces slashing penalties through smart contracts
- Provides decentralized security guarantees through underlying blockchain

Pell Chain (Core Layer)

- Functions as the central coordination hub for aggregating staking data
- Maintains consensus through a distributed network of Operators using PellCore for validation
- Manages cross-chain operations via PellRelayer with Observer and Signer modules

- Utilizes Dynamic Hidden Committee (DHC) mechanism for secure key management
- Employs Ring VRF for validator selection and Threshold Signature Scheme for transaction signing

Service Layer
- Deploys BTC restaking services through foundational smart contracts
- Integrates staking data and weight parameters from the Staking Layer
- Provides security infrastructure for Decentralized Validated Services (DVS)
- Enables cross-chain communication and transaction validation

This architecture enables secure, decentralized, and efficient cross-chain operations while maintaining high throughput and reduced latency.

H.8. Audit

'True' – Yes

H.9. Audit Outcome

Pell Network's smart contracts have undergone comprehensive security audits by two reputable firms in April/May 2024.

The MetaTrust audit identified a total of 5 issues: 1 medium risk vulnerability, 1 low risk vulnerability, and 3 informational issues. The audit found no critical or high-risk vulnerabilities.

PeckShield's audit similarly found 4 issues: 2 medium-severity vulnerabilities and 2 low-severity vulnerabilities, with key findings related to initialization logic, third-party transfer enforcement, withdrawal logic, and admin key trust issues.

All identified issues have been either resolved or mitigated appropriately. Both audit firms concluded that the codebase is well-organized, and the project team was responsive in addressing the identified issues.

The complete audit reports and verification details are available at https://docs.pell.network/security/audits.

Part I – Information on risks

I.1. Offer-Related Risks

The PELL token offering follows a structured timeline spanning January 28-31, 2025, with PELL token distribution extending into February 2025. The initial subscription period (January 28-30) operates under precise UTC timeframes, creating exposure to market volatility during these phases.

The extended timeline between subscription and token claims creates additional exposure to price fluctuations, as market conditions during the claim phase may differ substantially from those during the initial subscription period.

The offering's execution relies on smart contracts, which inherently carries technical risks despite security precautions.

I.2. Issuer-Related Risks

Legal and Regulatory Risk. The legal classification of the PELL token may evolve over time due to regulatory developments, changes in legislative frameworks, or shifts in supervisory practices and interpretations by competent authorities. This dynamic nature of crypto-asset regulation requires ongoing monitoring of both legislative changes and regulatory guidance to ensure continued compliance.

Non-compliance with these regulations could result in sanctions, potentially affecting the market value of the PELL token.

Potential lawsuits or adverse legal rulings could impact our operational capacity, negatively affect the PELL token, and potentially harm the interests of prospective holders.

Fraud and Mismanagement Risks. Fraudulent activities, security incidents, or operational mismanagement could materially impair the PELL token. Such events may damage market confidence and public perception, potentially compromising token accessibility and functionality. The resulting reputational impact could adversely affect token value, creating risks for token holders.

I.3. Crypto-Assets-Related Risks

Secondary Market Price Risk. Crypto-assets are highly volatile, and the market value of a token may fluctuate due to macroeconomic factors beyond our control. Accordingly, the PELL token may lose its value partially or entirely as a result of market conditions.

Liquidity Risk. The PELL token may experience periods of limited liquidity in secondary markets, potentially constraining holders' ability to execute transactions at desired prices or volumes. This could result in significant financial losses for prospective holders.

Scam Risks. There are also risks associated with the misappropriation of crypto-assets from custodial or non-custodial digital wallets, or loss of private keys (seed phrase), which can result in the irreversible loss of crypto-assets.

Taxation Risks. The tax implications of buying and selling PELL tokens are subject to the specific tax regulations of each jurisdiction.

I.4. Project Implementation-Related Risks

Inadequate implementation of updates at the protocol level or failure to adapt to the evolving crypto-assets market could adversely affect both the PELL Network and the PELL token.

I.5. Technology-Related Risks

Two types of risks within Pell Network are identified and Pell have established effective mitigation mechanisms for each:

Operators Collusion Attack. Ideally, when all node operators restake their assets into all of Pell Network's DVS, the cost of attacking any one DVS would be proportional to the total assets staked in Pell Network. This scenario is optimal for maximizing disruption costs. However, in reality, only some operators may choose specific DVS, leaving potential security vulnerabilities, such as possible collusion attacks on certain types of DVS.

Potential Unforeseen Slashing Vulnerabilities. In Pell Network, the goal for DVS is to reach a stable state. A stable DVS should undergo rigorous real-world testing to ensure very low unforeseen risks. Before reaching this mature stage, the slashing mechanism must cautiously handle various risks stemming from potential security vulnerabilities, especially those inadvertently introduced during programming, as these could lead to asset losses even for honest users.

I.6 Mitigation Measures

For Operators Collusion Attack, Pell has considered the following two mitigation strategies:

- **Limiting DVS Value Circulation:** As a preventative measure, DVS can limit the amount of value circulated within a specific timeframe. For example, bridges could limit fund flows during reduction periods, while oracles might limit total transaction volumes. The implementation of this strategy depends on the DVS designers.
- **Proactively Increasing Attack Costs:** Pell Network can take measures to increase the costs of attacking specific DVS. A generalized analysis is conducted which assumed that stakers might collude to launch a collusion attack. If colluders control the majority of nodes in some DVS, they could exploit these nodes to extract value from the DVS. Therefore, Pell Network has designed a mechanism to identify operators or groups of stakers who might pose a security risk through collusion. For example, by creating open-source dashboards, Pell allows DVS to monitor whether operators participating in their verification tasks are also heavily involved in multiple other DVS. This helps DVS to incorporate terms in service contracts that

encourage operators who participate in only a few DVS to join more DVS services. Thus, we can consider Pell Network to have resilient security.

To address the potential unforeseen slashing vulnerabilities, Pell Network has designed the following defence mechanisms:

- **Security Audits**: Before an DVS can be registered and run by node operators on the Pell Network, the DVS development team must provide a comprehensive code audit report. This ensures the service's security and builds confidence among stakeholders and operators.
- **Continuous Risk Assessment**: Prior to formally integrating with Pell, an DVS undergoes continuous risk simulation to evaluate its performance under various parameters. Additionally, Pell will monitor operator participation and node performance data to dynamically assess and adjust the DVS service's risk levels.
- **Delayed Slashing and Vetoing Slashing Events**: Before an DVS reaches a fully stable state, each slashing event will be preliminarily decided by more than two-thirds of the consensus nodes in the Pell Network. The decision will then be published for community review. The final decision requires a vote from both the Pell community and the governance layer. Early governance members are jointly nominated by the Pell team and the community. The governance layer, using multi-signature decisions, can veto potential slashing actions based on the vote results. This involvement in slashing decisions by the governance layer is a temporary measure, akin to a consensus mechanism that may be phased out in the future, aimed at providing additional security safeguards before the system is fully stable.

These security audit and governance intervention mechanisms are implemented by Pell Network to achieve resilient security. Even before DVS is fully stabilized, these measures ensure that security risks are effectively contained, protecting user assets and promoting the healthy development and eventual stability of DVS.

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

Annual Energy Consumption

- Total estimated energy consumption: 8.684 kilowatt-hours (kWh) per calendar year

- This energy is used for transaction validation and maintaining the distributed ledger integrity

Per-Transaction Energy Impact

- Energy consumption per validated transaction: 0.000208604 kWh
- This figure represents the energy required to validate a single transaction on the PELL network