NOVA Whitepaper

2026.01

1. Introduction

1.1 Background

Since the birth of Bitcoin in 2009, consensus mechanisms have become the cornerstone of blockchain technology. The two most prominent mechanisms are Proof of Work (PoW) and Proof of Stake (PoS). PoW relies on computational power to secure the network and achieve consensus, providing high decentralization but suffering from low efficiency and significant energy consumption. PoS, on the other hand, selects block validators based on the proportion of tokens staked, offering high efficiency and low energy use, yet often resulting in capital concentration and reduced decentralization.

As the blockchain ecosystem evolves, most mainstream public chains now adopt PoS-based mechanisms to improve scalability and reduce energy costs. However, this shift introduces new challenges. PoS mechanisms tend to favor large token holders, making it difficult for ordinary users to fairly participate in network rewards. Conversely, PoW remains secure and highly decentralized but suffers from inefficiency and excessive energy consumption. These issues highlight the need for a consensus design that balances security, decentralization, and efficiency, while empowering ordinary participants.

1.2 NovaChain Overview

What is NovaChain

NovaChain is a public chain project with a PoW+PoS hybrid consensus mechanism, designed to address both cross-chain asset transfer challenges and the issue of idle mining hardware. By combining the strengths of PoW and PoS, NovaChain seeks to balance decentralization, security, and operational efficiency.

Problems Addressed and Solutions

NovaChain aims to solve the trade-off between decentralization and cost-efficiency in blockchain networks. Its hybrid PoW+PoS design leverages the advantages of both mechanisms: PoS staking secures the network while PoW mining unlocks the value of individual computational resources. This dual-engine approach ensures fair participation, predictable rewards, and transparent, auditable rules.

Philosophy and Vision

NovaChain believes that every ordinary user's device should serve as productive resources in the digital world. The project's vision is to build a value-driven public chain where everyone can participate and benefit equitably.

Core Principles:

- **Fair Launch**: No VC pre-mining; the treasury dynamically supports the ecosystem.

- **Sustained Incentives**: 21-week decaying staking rewards to prevent early dumping.

- **Community Governance**: Treasury funds are used for buybacks and ecosystem incubation, gradually transitioning control to the DAO.

- **Hardware-Software Synergy**: Launch of NovaNode mining hardware allows for dual rewards from token holdings and device operation.

Vision Slogan:

"Your Stake, Your Power. Your Node, Your Future."

This represents NovaChain's commitment to empowering users through both financial participation and active network contribution.

2. PoW+PoS Dual-Engine

2.1 Why Hybrid Engines Are Needed

Proof of Work (PoW) and Proof of Stake (PoS) each have unique strengths and limitations.

- **PoW Advantages and Disadvantages**:
  PoW provides high decentralization by allowing any participant with computational power to compete for block validation. However, this comes at the cost of low efficiency, high latency, and substantial energy consumption, limiting scalability and environmental sustainability.

- **PoS Advantages and Disadvantages**:
  PoS achieves high efficiency and low energy use by selecting validators proportionally to their staked tokens. While it significantly reduces operational costs, PoS often favors large stakeholders, resulting in reduced decentralization and potential wealth concentration.

Combining the Best of PoS and PoW

PoS → NOVA → PoW

High efficiency
Low energy use

High decentralization
High security
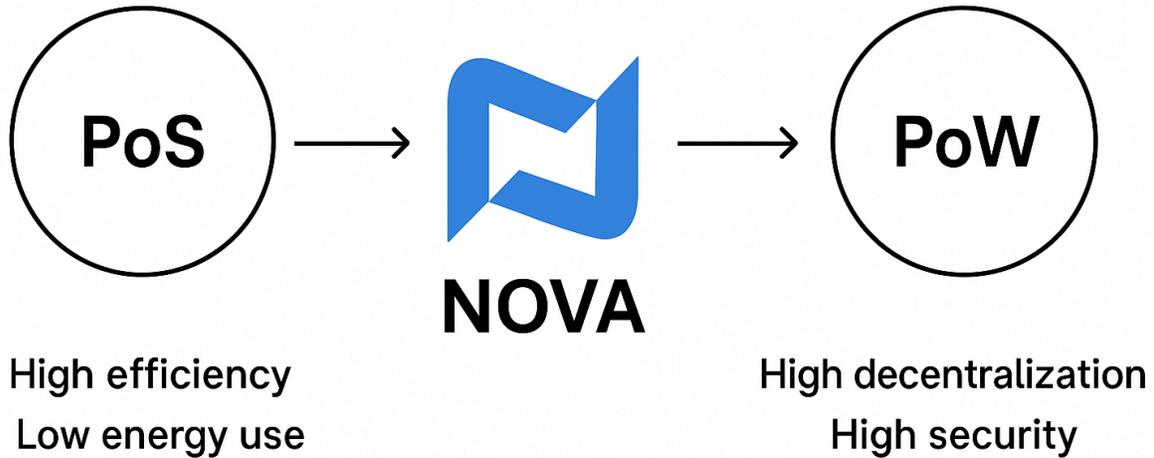
To address the inherent trade-offs, a hybrid PoW+PoS engine leverages the advantages of both systems: PoS ensures network security and efficiency, while PoW maintains high decentralization and incentivizes the productive use of computational resources.

2.2 Implementation of the Hybrid Engine

Technical Principles of Engine Integration

NovaChain's hybrid engine operates through a dual-layer consensus mechanism:

1. **PoS Layer**:

   ○ Validators are selected based on the proportion of tokens staked and node uptime.

   ○ Ensures stable network security and predictable block generation rates.

2. **PoW Layer**:

- ○ Miners perform computational work to produce additional blocks.

  - ○ Supports decentralization by enabling participants with hardware resources to contribute meaningfully.

Conflict Resolution in Ledger Rights Allocation

To determine block production rights between PoW and PoS:

- Each block round is allocated a dynamic ratio of PoW and PoS validation power based on network conditions and staking participation.

- PoS staking defines baseline network security, while PoW miners compete for the additional reward slots.

- A weighted hybrid score system ensures fair reward distribution while maintaining efficiency and decentralization.

Balancing Drawbacks

NovaChain mitigates the disadvantages of PoW and PoS by:

- Reducing PoW energy waste through adaptive difficulty and low-power mining hardware (NovaNode).

- Preventing PoS centralization with capped validator weights and dynamic staking incentives.

- Ensuring fair rewards for both small-scale and large-scale participants through a dual-reward system that combines staking returns and mining incentives.

2.3 Supporting Mechanisms

Directed Acyclic Graph (DAG) Structure

- NovaChain incorporates a DAG-based transaction architecture to enhance throughput and reduce latency.

- Benefits include faster block propagation, parallel transaction validation, and improved scalability compared to linear chain structures.

Staking System

- The staking framework is designed for long-term network sustainability.

- Features include a 21-week decaying reward schedule, capped staking limits to prevent centralization, and integration with the hybrid engine for combined PoW+PoS rewards.

EVM Compatibility

- NovaChain is fully compatible with the Ethereum Virtual Machine (EVM), allowing developers to deploy existing smart contracts and DApps seamlessly.

- Achieved through a Solidity-compatible runtime and toolchain integration, enabling rapid development and cross-chain interoperability.

Hardware Integration

- Hardware nodes prevent pure PoS centralization and promote a truly decentralized node distribution.

- Hardware-based participation provides sustainable income beyond token inflation, enhancing network security and user incentives.

Two Hardware Paths:

1. **NovaChain Proprietary Hardware**:

   - Multiple models and configurations including:

     - **NovaNode Mini**: Lightweight, plug-and-play home use.

     - **Desktop All-in-One Node**: Integrated display showing mining status.

     - **Data Center Rack Solution**: Enterprise-grade deployment.

2. **Existing Idle Mining Hardware**:

- Users can participate using their existing mining rigs, provided they meet minimum specifications.

- This approach activates underutilized hardware and broadens network participation.

3. Market Analysis

3.1 Market Size and Growth Potential

The global blockchain market is projected to grow from $3 billion in 2021 to over $39 billion by 2026. This exponential growth reflects the increasing demand for blockchain-based solutions across multiple industries. Blockchain technology is being widely adopted in sectors such as finance, supply chain management, healthcare, and beyond, where transparency, security, and efficiency are critical.

Continuous technological innovation in blockchain creates opportunities for scalable and sustainable solutions. As a result, NovaChain is well-positioned to capture a significant share of the growing market by offering a unique hybrid PoW+PoS ecosystem that combines efficiency, decentralization, and inclusivity.

Hardware Mining Market

- A substantial portion of global mining hardware remains idle due to fluctuating profitability and high energy costs.

- NovaChain enables the productive use of these idle machines through its hybrid consensus mechanism, activating untapped computational resources and broadening network participation.

Target User Groups

1. **Miners**:
   Miners seeking a more sustainable and profitable alternative will benefit from the hybrid PoW+PoS mechanism, which reduces energy consumption while providing competitive rewards.

2. **Developers**:
   Developers building decentralized applications will find NovaChain's EVM compatibility and DAG-based architecture advantageous, offering faster transaction throughput and efficient development tools.

3. **Investors**:
   Investors seeking projects with strong technical foundations and long-term growth potential can see NovaChain as a promising opportunity. Its innovative dual-engine

approach ensures sustainable value creation and predictable rewards.

3.2 Competitive Analysis and Business Model

Competitive Advantages

- **Performance**:
  NovaChain achieves high transactions per second (TPS) and low latency through its DAG structure, enabling faster and more efficient transaction processing compared to conventional linear blockchains.

- **Sustainability**:
  The hybrid PoW+PoS consensus mechanism significantly reduces energy consumption, making the network more environmentally friendly and cost-effective.

- **Inclusivity**:
  The staking system allows a broader range of participants to engage in network operations, democratizing access and promoting a more decentralized ecosystem.
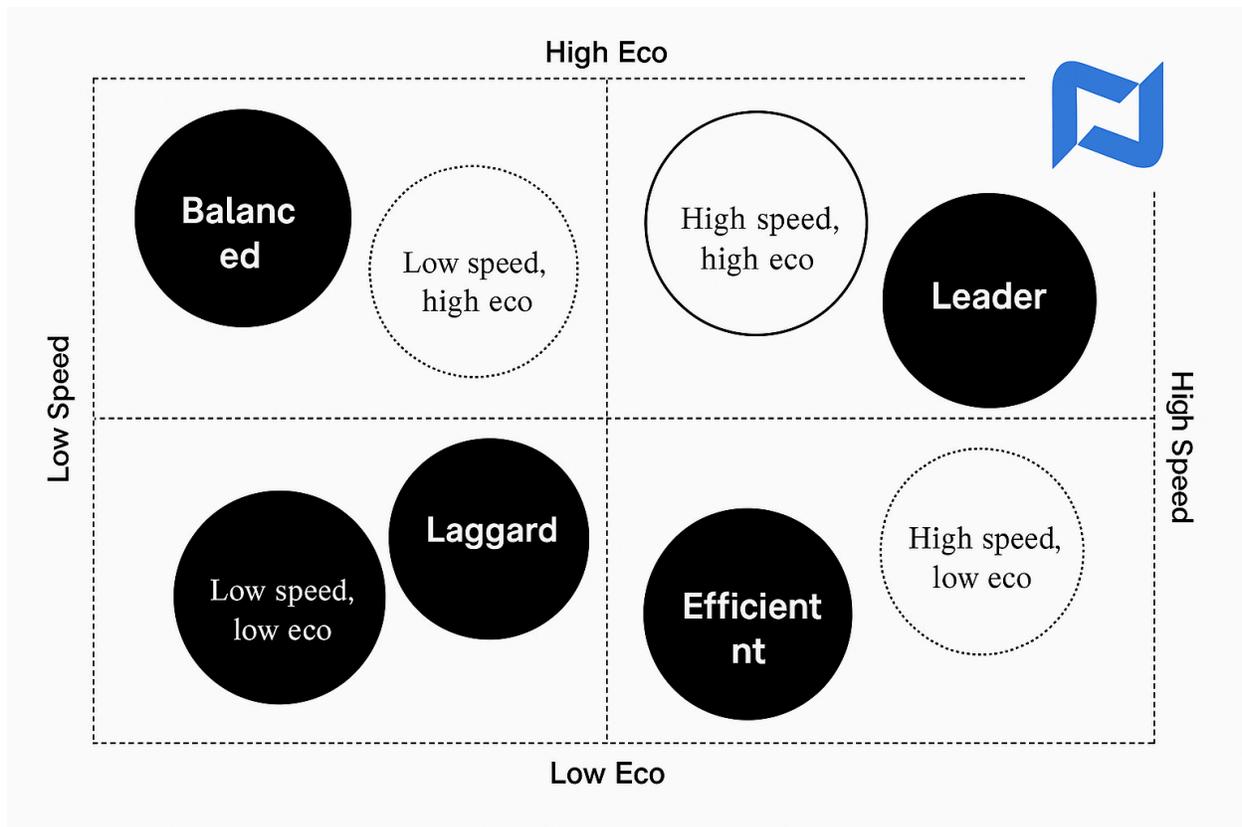
Revenue Model

1. **Transaction Fees**:
    NovaChain generates revenue through transaction fees collected on the network. As transaction volume grows, this provides a stable income stream.

2. **Staking Rewards**:
    Token holders participating in the consensus mechanism earn staking rewards, incentivizing long-term participation and strengthening network security.

3. **Partnerships**:
    Collaborations with mining equipment manufacturers and hardware vendors contribute additional revenue. These partnerships expand the ecosystem, support node deployment, and drive overall network adoption.

4. Tokenomics

4.1 Basic Economics and Initial Issuance

NovaChain's token, **NOVA**, is designed with a fixed total supply to ensure scarcity and long-term value preservation. The initial token allocation is structured to balance liquidity, network incentives, and ecosystem development.

NOVA Token Distribution
(Total Supply: 100,000,000)

Treasury

Liquidity Pool

5.0%

5.0%

40.0%

50.0%
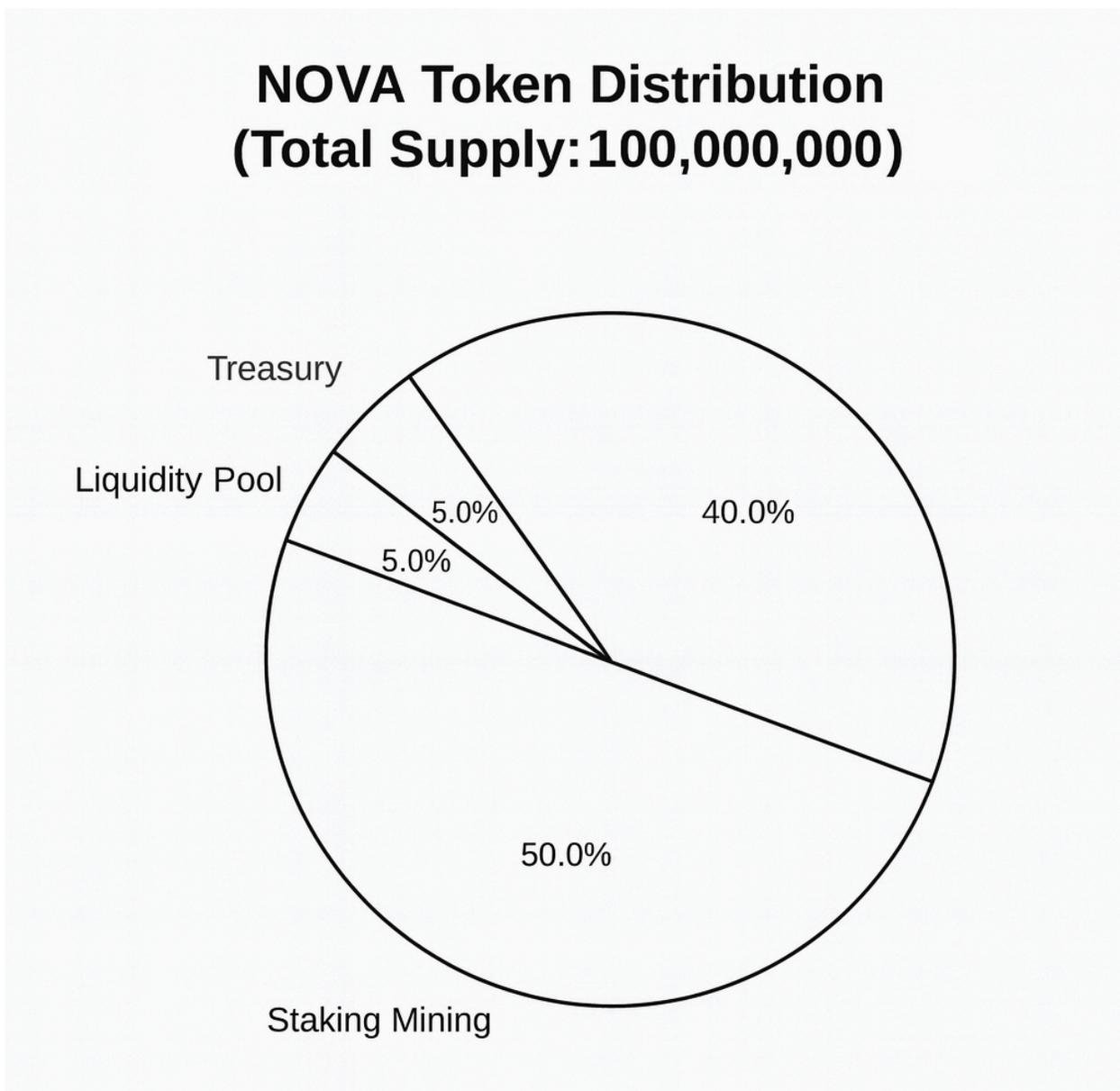
Staking Mining

Category	Amount	Description
Total Supply	100,000,000 NOVA	Fixed total supply, never to be increased
Liquidity Pool	5,000,000 NOVA	Initial pairing on major DEX platforms (ETH/USDT)
Staking Mining	50,000,000 NOVA	Released linearly over 21 weeks, approximately 2,380,000 NOVA per week
PoW+PoS Reward Pool	40,000,000 NOVA	Used for block rewards and hardware incentives after mainnet launch
Treasury	5,000,000 NOVA	Ecosystem development fund for price stabilization, strategic partnerships, and emergency buybacks

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4.2 Staking Mechanism

Staking is a key part of NovaChain which benefits our builders and encourages users to participate into the ecosystem. Here are the basic information about the staking:

- **Staking amount**:
  500/1,000/2,000 NOVA(setting at backend supported)

- **Staking period**:
  21 weeks(147 days)

- **APY**:
  20%

  Daily Yield=Staking amount*(1+20%)/147

  The yield will be sent automatically, no need to claim.

To maintain network stability and market confidence, a portion of 10% of the referral rewards(will be introduced below, doesn't include your staking rewards) will be directed to the NovaChain Treasury.

- **Treasury Operations** (monthly):

- ○ **Price Above 1.5× Issue Price** → No intervention

- ○ **Price Below 80% of Issue Price** → Automated smart contract buyback and token lock or burn

- ○ **Ecosystem Expansion** → Investment in strategic partners or community incentive programs (airdrop, grants, etc.)

This automated mechanism enhances trust by ensuring transparent, rule-based interventions while maintaining market equilibrium.

4.3 Community Incentive and Referral System

To encourage organic growth and community building, NovaChain implements a multi-level referral reward system.

- ● **Referral**:

  Tier 1: Inviter gets 15% of the staking amount of the invitee as rewards.

  Tier 2: Inviter gets 10% of the staking amount of the invitee as rewards.

- ● **Community contribution bonus**:

  If you've got referral of at least 11 Tier 1 invitees, you will receive additional 2% of daily mining rewards of the team(people related to you)

  For example, if someone has 20 Tier 1 invitees and 80 indirect invitees, and each of the invitees stakes 1,000 Nova, then the community contribution bonus he or she can get:

  (20+80)*1000*(1+20%)/147*2% (Daily)

- ● **Regional leader bonus**:

  If you've got referral of at least 33 Tier 1 invitees, or at least 3 of your Tier 1 invitees has at least 11 Tier 1 invitees, you will receive 2 bonuses:

  (1)Share 2% of the total new staking amount for the day

  For example, if there are 10 people who are qualified for regional leader bonus, and on that day there are new staking amount of 1,000 NOVA, then you can receive:

1,000*2%/10=2 NOVA

(2)additional 3% of daily mining rewards of the team(people related to you)

- **Note**:

  (1)You can't receive both community contribution bonus and regional leader bonus at the same time. If you are qualified for regional leader bonus, you can't receive community contribution bonus.

  (2)The total reward you get daily can't exceed the amount you stake. For example, if the total amount you stake is 500 NOVA, you can't get more than 500 NOVA rewards daily.

  (3)The total staking amount of all related invitees must be bigger than the winner of community contribution bonus or regional leader bonus, or the winner can't get the bonus.

  (4)When the total amount of NOVA generated(staking mining+referral rewards+community contribution bonus+regional leader bonus) exceeds 60% of the total amount(30,000,000 NOVA), the mining ends.

  (5)Each user can stake multiple times(but less than 2,000 NOVA in total), and has to claim their referral rewards and bonus on themselves.

4.4 Community Governance

NovaChain aims to progressively decentralize control and empower the community:

- **Phase 1 (0–6 months)**: Core team management and operation

- **Phase 2 (Month 6 onward)**: Establish NovaDAO prototype; open governance proposals for the community

- **Phase 3 (Month 12 onward)**: Transition treasury control to DAO voting, enabling fully decentralized decision-making

5. Conclusion

5.1 Roadmap

Overall Roadmap

2026 Q1

- Launch the testnet

- Release blockchain explorer and browser wallet

- Launch beta version of DApp

- Announce developer grant program

2026 Q2

- Officially begin 50 million NOVA staking mining

- Host the Super Node Challenge

- Award the "Ecosystem Contribution Prize" for content creators, volunteer translators, etc.

- Hold a developer hackathon

2026 Q3

- Launch mainnet, initiate PoW+PoS joint block production

- Release the first lightweight mining node, **NovaNode Mini**

- List on major decentralized exchanges (DEX)

2026 Q4

- Expand the Nova ecosystem: **NovaSwap**, **NovaID**, **NovaPay**, etc.

- Introduce cross-chain bridges to Ethereum, BNB Chain, Polygon

- Apply for listings on CoinGecko, CoinMarketCap, and major centralized exchanges (CEX)

Technical Roadmap

Phase	Key Milestones
Phase 1: Consensus Layer	Implement PoW+PoS hybrid algorithm prototype, initial testnet deployment
Phase 2: Smart Contract Development	Develop staking, dividend, and treasury management contracts (Solidity/EVM compatible)
Phase 3: Frontend and DApp	Launch official website and DApp supporting wallet connections, staking, and referral systems
Phase 4: Testnet Deployment	Open public testing, simulate staking, mining, and withdrawal workflows
Phase 5: Security Audit	Conduct multi-party audits, identify and fix vulnerabilities
Phase 6: Mainnet Launch	Official mainnet launch and initiation of first-phase staking mining

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5.2 Risk Disclosure

Risk Type	Mitigation Measures
Market Price Volatility	Automatic treasury buyback mechanism + lockup agreements
Regulatory Uncertainty	Register under a Singapore foundation; avoid offering services to U.S. users

Technical Vulnerabilities	Multiple audits, open-source code, bug bounty programs
Community Fragmentation	Regular AMA sessions, transparent financial reporting, DAO transition plan
Hardware Production Constraints	Secure advance supply agreements and maintain a 20% inventory buffer

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5.3 Conclusion

NovaChain is more than just a blockchain; it is a **distributed computing network for the future**. It breaks the old paradigm of "only the wealthy can mine" by allowing every participant to earn fair rewards through time, effort, and device contribution.

We are building a bridge:
On one side lies the stability of the traditional financial world,
On the other side lies the freedom and innovation of the crypto world,
And you are the traveler and co-builder walking across this bridge.