Capygo: Layered Mining Mechanics in a Living Game World

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Abstract

Capygo is a vibrant blockchain game where digital pets roam, evolve, and compete. As part of its next growth phase, Capygo introduces an on-chain mining system that integrates seamlessly with its existing game ecosystem. Capygo Mining rewards long-term players, enhances in-game utility, and offers real yield through token-based mechanics.

This system is based on a fixed supply and halving emission model, inspired by Bitcoin, but tailored to the game-native economy of Capygo. Players earn $CAPY by operating virtual miners, managing facilities, and powering equipment through in-game strategies. The design simulates realistic energy costs and deflationary sinks to ensure sustainable growth.

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1. Introduction

Launched in early 2024, Capygo has grown into a living GameFi ecosystem driven by collectibility, social interaction, and decentralized ownership. In May 2025, Capygo Mining adds a new on-chain dimension: a play-to-earn mining layer fully embedded in the game world.

Traditional proof-of-work mining is expensive and inaccessible. Capygo replaces it with "proof-of-strategy"—players accumulate virtual hashrate through NFTs, upgrades, and planning. The system is:

- **Fully on-chain:** Smart contracts handle all emissions and reward logic.
- **Accessible:** No specialized hardware or external wallets required.
- **Integrated:** Core game features (habitats, pets, items) influence mining.
- **Sustainable:** Includes halving, token burn, and energy-cost mechanics.

Capygo Mining is not a separate game—it is a powerful new layer of gameplay built on top of the world players already inhabit.

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2. Token Supply and Emission

Capygo Mining adopts a fixed supply and halving model to reward early participants while preserving long-term sustainability.

- **Total Supply: 2.1 billion $CAPY**
- **No Pre-mine: 100% of tokens are mined through on-chain gameplay**
- **Block Time: 10 seconds**
- **Block Reward: 5,000 $CAPY**
- **Halving Interval: Every 210,000 blocks (~24.3 days)**
- **Referral Rebate: 2.5% of each player's mined rewards go to the referrer**

Emission Formula:

$$R_b(n) = R_0 \cdot \left(\frac{1}{2}\right)^{\left\lfloor \frac{n}{210{,}000} \right\rfloor}$$

This moderate halving cadence balances urgency with sustainability, distributing rewards over a ~24-day epoch cycle.

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3. Mining System

Mining rewards are distributed proportionally based on player hashrate.

$$R_i = \frac{h_i}{H} \cdot R_b$$

Where:

- R_i: reward for player i
- h_i: hashrate of player i
- H: total network hashrate
- R_b: current block reward

Players can increase hashrate through:

- Acquiring and upgrading **miners**
- Expanding **facilities** for energy output and capacity
- Equipping **decorative or functional accessories**
- Utilizing **NFT boosts** for performance multipliers
- Maintaining **energy supply** for miner uptime

🟡 **Electricity is a critical input.** Miners without energy generate no rewards.

4. Miner Power & Charging Model

To simulate real-world mining economics, Capygo introduces an **energy system** that governs miner uptime:

- Upon first purchase, each miner includes **48 hours of free power**

- After the grace period, players must **pay $CAPY to keep miners powered**
- Example (subject to tuning): **1,000 $CAPY = 24 hours of power per miner**
- **Unpowered miners stop generating rewards instantly** and must be recharged

> ⚠️ This mechanism encourages continuous engagement and creates a sustainable economic loop via energy spending.

5. Miner Overview

At the beginning of Capygo Mining, players will have access to a selection of foundational miner types. These early-stage miners represent the first wave of mining technology—designed to balance accessibility, efficiency, and performance.

Each miner offers a different combination of hashpower output and energy consumption, allowing players to craft individualized strategies depending on their available space, power supply, and gameplay goals.

Example starter miners include:

- **Hamster Miner** – Low hashpower, minimal energy usage
- **Modular Miner** – Versatile design with moderate energy cost
- **Industrial Miner** – High stability and solid hash output
- **Air-Cooled Miner** – Balanced temperature control and throughput
- **Eco Miner** – Designed with sustainability in mind
- **Water-Cooled Miner** – Significantly higher performance with increased power demands

⚡ *Details like power cost, pricing, and scaling will be revealed over time and may be adjusted based on community feedback and ecosystem balance.*

Capygo encourages experimentation and optimization—no single mining path is the same.

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6. NFT Acceleration (Staking-based Boost)

Certain special NFTs can be **staked (locked)** to provide mining acceleration bonuses.

- Each staked NFT grants **+10% effective hashrate boost**
- NFTs must be **locked in staking** to activate boost

📌 Example:

A player stakes **1 NFT** linked to their Quantum Miner.
The Quantum Miner has a base hashrate of **200,000**.
With the boost:

200,000×(1+0.1)=220,000 Hashrate

- Unstaking the NFT will **immediately remove the boost**
- Boosting effects **do not consume energy** and **cannot be sold** while locked

This system rewards committed players and creates utility for premium NFT holders, while maintaining gameplay balance through capped boosts.

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7. Burn Mechanics and Token Sinks

Capygo's economic loop is deflationary by design. Token sinks are built into core activities to stabilize long-term value.

Item / Action	Description	Burn Rate
Miner Purchases	Buying new equipment	75%
Facility Upgrades	Expanding mining infrastructure	75%
Decorative Items	Visual customization, bonuses	75%
Electricity Fees	Powering miners daily	75%

📉 **Estimated Net Burn Rate:** 60%–80% of in-game $CAPY is permanently burned across all activities.

This ensures that as mining activity increases, total supply gradually shrinks, driving scarcity and supporting long-term token value.

8. Token Utility

$CAPY is the primary utility and governance token within the Capygo ecosystem. Its uses span both mining operations and broader game functionalities:

- **Mining Operations**
    - Purchase and upgrade miners
    - Upgrade and expand mining facilities
    - Pay electricity fees to maintain miner uptime
    - Buy accessories and enhancements
- **Game Utility**
    - Crafting materials and combining game assets
    - Participation in special events, loot boxes, or raffles
    - Unlocking habitats, cosmetics, and prestige content
- **Governance**
    - DAO voting on emissions, treasury management, and gameplay parameters
    - Community proposals for new features or reward systems
- **External Utility (Planned)**
    - Trading on decentralized exchanges
    - Staking for passive yield
    - Redemption for real-world merchandise or event access

Capygo is designed as a **multi-layered utility token**, anchoring in-game progression and decentralized governance alike.

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9. Smart Contracts and Transparency

All Capygo mining contracts are deployed transparently and verifiable on-chain. Key components include:

- **$CAPY Token Contract:**
  `0x967d9125a338c5b1e22b6aacaa8d14b2b8b785ca44b614803ecbcdb4898229f3`

- **Main Contract:**
  `0x8b02d210a22482ba7c36c55629716f36aaff65536971fceae73ec4227ab3022a`

- **Burn Contract:**
  `0xcb789347829ecc3264ea09e641e1ac50d30d0662352d61abc75578b7ed9d071d`

A real-time dashboard will display:

- Current block rewards
- Miner participation and hashrate distribution
- Burn statistics and total emissions
- Leaderboards and facility rankings

🧾 URL : `https://www.capygo.io`

Smart contract audits are in progress with [partner auditor name], and will be published prior to public expansion.

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10. Roadmap

Quarter	Milestone Highlights
Q2 2025	Mining system launch, basic miners and free energy phase
Q3 2025	NFT integration, advanced miner tiers, game economy sync
Q4 2025	DAO launch, emission policy adjustments, staking options
Q1 2026	Electricity pricing finalized, mobile UI and cross-chain
Beyond	Real-world item redemption, PvE mining events, IP expansion

Capygo’s roadmap is both iterative and community-governed. The core gameplay will evolve based on feedback, DAO proposals, and ecosystem maturity.

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11. Conclusion

Capygo Mining introduces a new gameplay layer that turns strategic planning into decentralized income. It rewards players not just for participation—but for smart management of power, timing, and synergy between assets.

With a fixed supply, accelerated halving schedule, real token sinks, and layered utility design, Capygo presents a mining economy built for fun, fairness, and long-term value.

This isn’t just a mining simulator.
It’s a living, breathing economy inside a game you actually want to play.