

Biosphere Rocks – White Paper v1.0 (2025)

“The document defining the global standard for measuring and rewarding real impact.”

Fernando Rosso — Biosphere Rocks

1. Introduction

Humanity faces an era of planetary urgency.

While sustainability has become a global priority, **the lack of real traceability** and the **growing distrust in impact data** continue to hinder the transition toward a transparent and regenerative economy.

Biosphere Rocks addresses this challenge through the creation of the **Proof-of-Impact Network (Pol)** —

a new protocol that transforms every positive action — environmental, social, or economic — into a **verifiable, traceable, and energy-efficient digital proof**.

“In Biosphere, AI and blockchain do not replace transparency — they reinforce it.”

2. Philosophy and Purpose

- **Vision:** Build a regenerative economy where every positive action generates measurable and rewarded value.
- **Mission:** Connect people, organizations, and territories into a transparent global network of impact.
- **Principles:** Data sovereignty, energy efficiency, decentralization, and universal accessibility.

- **Key Difference:** From *Proof-of-Work* to *Proof-of-Impact* — shifting from energy waste to real-world value.

3. General Architecture of the Ecosystem

Biosphere Rocks operates through **three interconnected layers**:

Layer	Role	Components
Infrastructure	Technological foundation	Master node, validator nodes, Supabase, Express API
Citizen Layer	Collective participation	Citizen nodes (PWA or lightweight app)
Governance Layer	Coordination and trust	BIOS.R + BiosCard + future DAO

Process flow:

User → Impact Action → Node/AI Validation → BIOSChain Registration → BIOS.R Reward

4. Proof-of-Impact Network (Pol Protocol)

The **Pol Protocol** is a decentralized system that validates **real social or environmental actions** through **distributed micro-validations** and **local AI verification**.

Step-by-step process

1. Impact Registration:

Organizations or individuals submit verifiable evidence of an action (e.g., photos, GPS,

sensor data).

2. **Citizen Validation:**

Distributed nodes review the data and generate cryptographic proofs (hashes).

3. **Local AI Review (StrategIA):**

AI analyzes correlations, detects inconsistencies, and assigns a *Confidence Score*.

4. **BIOSChain Registration:**

Proofs are aggregated into Merkle trees and sealed within the private blockchain.

5. **BIOS.R Rewards:**

Validators and contributors are rewarded based on participation and reliability.

Types of Proofs of Impact

- **Environmental:** Reforestation, clean energy, biodiversity recovery.
- **Social:** Education, inclusion, equality.
- **Economic:** Ethical financing, circular economy.
- **Cultural:** Community innovation, preservation, creative sustainability.

Energy footprint

- CPU \leq 5% per node.
- Cross-validation 10–20%.
- Batched hashing via Merkle roots.

5. BIOS.R – The Currency of Impact

BIOS.R is the ecological token of the Biosphere ecosystem, representing verified and traceable impact value.

Core uses:

- Rewards for Pol participation.
- Sustainable payments and crowdfunding.
- Governance and DAO participation.
- Certifications and service access.

Circular model: *impact generates BIOS.R → BIOS.R finances new impact.*

6. BiosCard – Digital Identity and Green Reputation

The **BiosCard** is a digital identity (NFT) that combines **reputation, wallet, and traceability** in one tool.

- Tracks user impact history (*Impact Score*).
- Fully compatible with Apple Pay, Google Pay, and Stripe.
- Enables direct transactions, donations, and Pol validations.
- Each verified action strengthens the user's on-chain reputation.

7. StrategIA – Local Artificial Intelligence

StrategIA is the local AI layer that evaluates impact in real-time.

It runs directly on validator nodes or user devices using **lightweight open-source models** (e.g., Mistral, LLaMA).

Advantages:

- Operates without external servers → ensures privacy and sovereignty.

- Extremely low energy consumption.
- Performs contextual analysis and fraud detection.

8. Energy Efficiency and Sustainability

Comparative overview

System	Energy Use	Purpose	Relative Consumption
Proof-of-Work	High	Competitive mining	100%
Proof-of-Stake	Medium	Capital staking	30%
Proof-of-Impact	Ultra-low	Collaborative validation of real actions	<5%

Technical optimizations

- CPU duty-cycling ($\leq 5\%$).
- Batched validation and Merkle aggregation.
- Periodic block creation with energy metrics.
- Goal: **carbon-neutral, energy-positive network**.

9. Business Model and Circular Economy

Revenue streams:

Category	Description	Model
Impact Certifications	Organizations pay to register and audit sustainability actions	SaaS / Annual License
Pol-as-a-Service API	Integration with third-party platforms (Odoo, Salesforce, etc.)	Usage-based API Fees
Aggregated ESG Data	Anonymized analytics for institutions and researchers	Subscription
BIOS.R Economy	Transaction fees (0.5–1%), fiat–crypto ramps	Dynamic
DAO Licensing	“Powered by Proof-of-Impact™” Certification	Annual License

Every transaction creates measurable social value and verifiable transparency.

10. Governance and Community

- **Impact DAO:** Each user holding a BiosCard and BIOS.R participates in decentralized governance.
- **Reputation-based Voting:** Votes are weighted by *Impact Score*.
- **Validator Incentives:** Rewards scale with trust and accuracy.
- **Open License:** *Biosphere License* — free for ethical use; restricted for speculation or greenwashing.

11. Roadmap

Phase	Objective	Status
P1	Local Pol prototype (PWA + validator nodes)	Active
P2	BIOSChain private blockchain deployment	In progress
P3	Integration of StrategIA (local AI)	Upcoming
P4	DAO implementation and governance	Planned
P5	Global API release and institutional partnerships	Future Stage

12. Protection and Publication

- **Hash:** Generated via IPFS or Arweave for proof of authorship.
- **Official legend:**

“Proof-of-Impact Network™ — Created and published by Biosphere Rocks (2025).”

- **License:** *Ethical Open Source* — free for environmental and social impact, prohibited for speculative or extractive use.

13. Conclusion / Manifesto

“Transparency is not an ideal — it is infrastructure.
In Biosphere Rocks, every positive action becomes measurable energy,
and every person a node of change.”
