# 1. Title of the Invention

Orion Belt Energy Network (OBEN):

Hybrid Multi-Sector Blockchain Ecosystem with Global Supernode Topology

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# 2. Applicant / Inventor Information

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Entity status: micro entity (expected), U.S.-based limited liability company.

This provisional application is intended to be assigned to Lithium Trading Company LLC and to cover the OBEN architecture, protocols, and associated ecosystem designs described below.

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# 3. Field of the Invention

The invention relates to blockchain and distributed ledger technology, specifically to:

- multi-layer, multi-rail blockchain ecosystems that support
    - public / retail transactions,
    - private / enterprise transactions, and
    - governmental / sovereign transactions

      on a coordinated infrastructure; and
- global node topology that uses a set of geographically and logically defined "supernodes" to ensure stability, energy efficiency, and equitable economic behavior.

The invention also anticipates integration with high-efficiency, low-cost energy sources (e.g., the separate LIBRA energy system) for powering blockchain infrastructure, but this provisional focuses on the crypto ecosystem architecture itself.

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# 4. Background of the Invention

Existing blockchain networks (e.g., Bitcoin, Ethereum) exhibit several structural problems:

1. Fragmented rails:
    - Public/retail activity,
    - private/enterprise activity, and
    - sovereign/central-bank activity

      are typically implemented on separate, uncoordinated platforms or ad-hoc layers.
2. Energy and scalability constraints:

   Mining and validation often consume large amounts of electricity, limiting feasibility for global, nation-scale adoption. Power grids and data centers struggle to support full migration of national economies to blockchain rails.
3. Economic instability and unchecked speculation:

   Many tokens are launched without structural guardrails. Liquidity and price discovery

can be easily manipulated, creating large wealth concentration and systemic risk, and making it difficult to responsibly use blockchains as national-scale financial rails.

4. Lack of neutral, globally acceptable infrastructure:

   No widely adopted architecture defines a neutral, multi-continent topology with explicit roles for continental supernodes, neutral hubs, and governance that can interoperate with different jurisdictions while retaining technical neutrality.

There is a need for a designed-from-first-principles blockchain ecosystem that:

- unifies multiple rails (public, private, governmental),
- can be powered by advanced energy systems,
- maintains hybrid decentralization (technical decentralization with optional neutral governance), and
- is explicitly structured to avoid malicious, destabilizing, or exploitative uses.

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# 5. Summary of the Invention

## 5.1 High-Level Concept

The Orion Belt Energy Network (OBEN) is a multi-rail blockchain ecosystem built as a triple-helix style architecture consisting of:

1. A public rail for retail and general-purpose use,
2. A private/enterprise rail for businesses and institutions, and
3. A sovereign/government rail for central banks and regulated public-sector activity.

These three rails are separate but tightly coordinated blockchains, designed to:

- run in parallel,
- interconnect through controlled bridges, and

- operate over a global “supernode” topology that uses seven (7) main supernodes corresponding to the seven continents, plus subordinate nodes.

The topology is inspired by:

- a hexagon with a central node (one node in the center, six around),
- a three-axis / three-rail structure, and
- a closed-loop, continuous flow of value and information (comparable to current flow in an electrical circuit or circulation in an ecosystem).

### 5.2 Objectives

Key objectives of OBEN include:

1. Unifying multi-sector rails: provide a coherent architecture for public, private, and governmental transactions on cooperating chains.
2. Global supernode topology: define continental supernodes and a neutral central supernode to support balanced, stable, and resilient operation.
3. Hybrid decentralization: maintain technical decentralization while enabling neutral, transparent governance where necessary (e.g., for sovereign rails).
4. Energy integration: design the rails so they can be powered by advanced energy systems (e.g., LIBRA energy) that reduce or eliminate traditional electricity bottlenecks.
5. Ethical and non-malicious use: embed design intent and governance hooks that discourage malicious use, minimize systemic economic harm, and promote global economic stability.
6. Prototype and interoperability: provide a concrete reference implementation using ERC-20 tokens and Ethereum mainnet as prototypes, to establish priority and demonstrate feasibility.

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## 6. System Overview

### 6.1 Three Rails (Triple-Helix Architecture)

The OBEN ecosystem consists of three conceptual rails, each of which may be implemented as its own blockchain or L2/L3 network:

1. Public Rail (“LIBRA Rail”)
    - Intended for retail users and open public activity.
    - Emphasizes liquidity, ease of access, and broad participation.
    - Prototype token: LIBRA ERC-20 on Ethereum (public rail prototype).
2. Private / Enterprise Rail (“LITHIUM Rail”)
    - Intended for businesses, institutions, and B2B flows.
    - Emphasizes reliability, contract logic, and compliance features.
    - Prototype token: LITHIUM ERC-20 on Ethereum (enterprise rail prototype).
3. Sovereign / Governance Rail (“ORION Rail”)
    - Intended for governmental, central bank, and regulated public-sector activity.
    - Emphasizes auditability, monetary policy tools, and risk controls.
    - Prototype token: ORION ERC-20 on Ethereum (governance rail prototype).

The rails are designed to:

- operate independently (each can validate its own transactions),
- be bridgeable under explicit rules (e.g., moving value from public rail to sovereign rail with KYC/compliance filters), and
- maintain synchronized state information for key macro-level metrics (e.g., circulating supply caps, cross-rail capital flows).

## 6.2 Global Supernode Topology (7 Continents)

OBEN uses a 7-supernode global topology tied to the seven continents:

1. North America Supernode

2. South America Supernode
3. Europe Supernode
4. Africa Supernode
5. Asia Supernode
6. Australia/Oceania Supernode
7. Antarctica / Neutral Vault Supernode (center)

Conceptually:

- The six non-Antarctic supernodes form the outer hexagon.
- The Antarctica supernode is treated as a central “frozen vault” or neutral cold-storage / archival node, symbolizing neutrality and long-term security.
- Operationally, the “neutral center” for governance and coordination may correspond to a politically neutral jurisdiction, such as Switzerland, while the conceptual central node is mapped to Antarctica for cold storage and neutrality metaphor.

Each supernode:

- represents a logical region,
- may be implemented as one or more physical data centers or node clusters in that region, and
- can optionally host advanced energy infrastructure (e.g., LIBRA power stations) to provide local power for mining/validation.

Subordinate regional and local nodes attach to each supernode, forming a hierarchical yet decentralized mesh. This can include:

- urban validator clusters,
- rural edge nodes,
- specialized nodes for banking, government, or energy-grid integration.

## 6.3 Node Roles and Flows

Each rail maintains its own set of nodes, but all three rails share the same supernode geometry. For example:

- North America supernode hosts:
    - public rail validators for NA users,
    - enterprise validators (e.g., banks, companies), and
    - sovereign/government validators where applicable.

Value and data can:

- flow around the outer hexagon (e.g., cross-continent transfers),
- pass through the central neutral vault for long-term archiving or multi-rail settlement, and
- traverse bridges connecting the three rails at defined points (e.g., a public-to-private bridge, private-to-sovereign bridge, etc.).

The architecture supports bi-directional flows and closed-loop circulation:

- Assets can move forward/backward along each rail,
- convert between rails at supervised bridges, and
- repeatedly circulate around the network, similar to an ecosystem cycle or three-phase electrical system.

## 6.4 Hybrid Decentralization and Governance

OBEN is designed as hybrid decentralized:

- At the protocol level, it uses decentralized consensus (e.g., proof-of-stake or other efficient schemes) across a wide network of validators.
- At the governance level, certain functions (especially on the sovereign rail) may be supervised by neutral, multi-stakeholder bodies such as:

    - a future neutral foundation,
    - public-private partnerships, or
    - supranational organizations.

The architecture:

- allows policy rules to be enacted via on-chain governance (e.g., caps on cross-rail leverage, circuit-breakers on extreme volatility),
- supports compliance hooks (KYC/AML gating at public–sovereign bridges),
- supports circuit breakers and throttling to reduce systemic shocks and economic abuse.

The invention explicitly does not require that any particular nation or institution be in control; rather, it describes the structural pattern that can be implemented under various governance models, preferably under neutral and ethical oversight.

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# 7. Example Implementation (Ethereum Prototypes)

To establish priority and demonstrate feasibility, the inventor has implemented prototype tokens on the Ethereum mainnet as ERC-20 contracts:

- LIBRA – prototype for the public rail token.
- LITHIUM – prototype for the enterprise/private rail token.
- ORION – prototype for the sovereign/governance rail token.
- MATT and LEO – personal/experimental tokens used for further testing of liquidity, price ranges, and user-level behavior.

For these prototypes:

1. ERC-20 contracts were deployed from a MetaMask wallet to Ethereum mainnet.
2. Liquidity pools were created on Uniswap (e.g., LIBRA/WETH, LITHIUM/WETH, ORION/WETH, MATT/WETH, LEO/WETH) with defined fee tiers and price ranges.

3. Tokens were pooled, swapped, sent, and received between:
    - MetaMask wallets (vault vs. operational),
    - Uniswap LP positions, and
    - external wallets (e.g., for testing transfers).
4. Liquidity was added and removed to test:
    - initial price discovery,
    - out-of-range conditions, and
    - re-pooling under different range parameters.

These prototypes are not the final OBEN rails, but they:

- demonstrate that the OBEN design can be instantiated on existing chains, and
- create a documented on-chain record (Etherscan, Uniswap, MetaMask transaction histories) proving prior reduction to practice and experimentation.

Contract addresses, transaction histories, and pool parameters for these prototypes may be listed in an appendix or supporting documents (Etherscan CSV exports, screenshots, etc.) for the non-provisional or as attachments to the provisional.

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# 8. Intended Integration with Advanced Energy Systems (High-Level Only)

OBEN is designed so its validator and supernode infrastructure can be powered by advanced, high-efficiency energy systems, including but not limited to the separate LIBRA energy concept (subject of a separate provisional application).

At a high level:

- Each supernode can be colocated with a high-efficiency power source (e.g., advanced renewable or novel energy system).

- This allows near-zero marginal cost validation at scale, facilitating:
    - national-scale or even global-scale use of OBEN rails,
    - reduced environmental impact, and
    - sustainable operation over long time horizons.

The specific physics, hardware, or reactor details of such energy systems are not claimed in this OBEN provisional and will be described in a separate energy patent (e.g., LIBRA energy). OBEN simply defines a blockchain/topology architecture that anticipates and benefits from such energy systems.

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# 9. Ethical Use, Non-Malicious Intent, and Safeguards

The inventor explicitly intends OBEN to be:

- Used for beneficial purposes only, such as:
    - stabilizing global financial flows,
    - reducing extreme inequality,
    - improving energy efficiency, and
    - supporting fair, transparent governance.
- Not used for malicious purposes, including:
    - funding terrorism, warfare, or human-rights abuses,
    - destabilizing economies for private gain,
    - enabling large-scale fraud, or
    - circumventing reasonable regulatory and ethical norms.

The architecture therefore includes:

- Governance hooks (e.g., compliance gates at rail bridges),
- Design space for circuit breakers, throttles, and safeguards, and
- Ability to embed policy rules (subject to local law) that discourage exploitative behavior.

This statement of intent is included to guide future implementations and interpretations of the invention and to align with national security and export-control concerns.

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# 10. Export Control / National Security Acknowledgement

The inventor acknowledges that:

- The OBEN architecture, especially when combined with advanced energy systems and potential quantum-scale computing, may intersect with U.S. national security and export-control frameworks, including but not limited to:
    - ITAR, EAR, and
    - 35 U.S.C. § 181 (Invention Secrecy Act).

The inventor intends to comply with all applicable laws and:

- will not knowingly export controlled technology without proper authorization,
- is submitting this provisional in good faith, with the intent that it be used for peaceful and constructive purposes, and
- is open to lawful review by appropriate agencies if requested.

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# 11. Advantages Over Prior Art (High-Level)

Compared to existing blockchain architectures, OBEN provides at least the following advantages:

1. Integrated multi-rail design:

Rather than ad-hoc layering, OBEN defines public, private, and sovereign rails as first-class citizens of the architecture, with explicit bridge and governance patterns.

2. Geographically explicit supernode topology:

   Uses a continent-based 7-supernode geometry (six outer, one central/neutral), facilitating:

   - region-based resilience,
   - clear mapping of physical infrastructure, and
   - potential integration with energy and grid infrastructure.

3. Hybrid decentralized governance:

   Supports technical decentralization while allowing optional neutral governance and compliance where needed (e.g., for central bank digital currency rails).

4. Energy-aware design:

   Is intentionally constructed to be powered by future ultra-efficient energy systems, addressing the energy bottleneck that limits many current blockchain systems.

5. Ethical and stabilizing intent:

   Unlike purely profit-driven token launches, OBEN is explicitly designed to promote global stability and fairness, using structural guardrails, rail separation, and bridge policies.

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# 12. Definitions (Non-Limiting)

- OBEN – Orion Belt Energy Network; the overall multi-rail blockchain ecosystem described herein.
- Rail – a logical or physical blockchain (or L2/L3 network) dedicated to a specific sector (public, private, sovereign).
- Supernode – a logical or physical cluster of nodes assigned to a continental or neutral region, playing a major role in validation and coordination.

- Rail Bridge – a protocol mechanism that enables value and/or data to move between rails under defined rules and safeguards.

- Neutral Hub / Central Supernode – the central node in the topology, conceptually associated with Antarctica (cold vault) and/or a politically neutral jurisdiction (e.g., Switzerland) for governance operations.

- Prototype token – an ERC-20 token deployed on Ethereum mainnet (e.g., LIBRA, LITHIUM, ORION, MATT, LEO) used to demonstrate aspects of OBEN but not limited to those exact implementations.