Liquid Liberty Protocol (v2)

Disclaimer: This protocol is currently in development and is subject to change.

I. High-Level Philosophy

The protocol is a fully autonomous, hybrid system. Smart contracts serve as a trustless financial core, while the off-chain DApp provides a user-friendly experience. The system is designed to operate with key parameters adjusting automatically based on the real, on-chain value of its own Treasury.

II. The Virtuous Economic Cycle

The protocol is engineered to create a powerful, self-reinforcing feedback loop where every economic activity directly strengthens the system. All revenue streams are perpetually reinvested into the core Treasury, creating a transparent and ever-growing foundation of value. The protocol is a zero-profit entity; all revenue is permanently and automatically reinvested into the ecosystem.

This includes:

- **DApp Listing & Advertising Fees:** All fees for listing items, offering services, and potential future advertising are paid in whitelisted tokens and sent directly to the Treasury's collateral reserves.
- **Protocol Transaction Fees:** A portion of every online and Point-of-Sale (POS) transaction is automatically routed to the Treasury, with the other half going directly to the seller. This ensures no profits are taken by a centralized person or entity, aligning all incentives with the health of the ecosystem.
- **Treasury Arbitrage:** The small spread between the Treasury's buy and sell price for LMKT generates a continuous stream of revenue from market activity, which is retained within the Treasury.
- **LBRTY Access Token:** As the access token for the marketplace, revenue generated from LBRTY is allocated to expanding real-world infrastructure and integrating with new blockchains, further increasing the protocol's reach and utility.

This constant inflow of capital perpetually increases the total value of assets backing the LMKT token, which in turn raises its collateral-backed price floor. This creates a virtuous cycle: increased platform usage generates more revenue, which strengthens the Treasury and the value of LMKT. This rising, transparent value builds user and merchant confidence, which drives further adoption—starting the cycle anew with even greater force.

III. The Core Smart Contracts

- **LBRTY.sol (Governance & Access Token):** The "membership card" for the marketplace. A minimum balance of LBRTY is required for marketplace access and jury duty.
- **LMKT.sol (Market Utility Token):** The protocol's utility token for commerce.
- **Treasury.sol (Autonomous Liquidity Manager):** The economic heart of the protocol. It manages the LMKT price, collateral, and liquidity.
- **PaymentProcessor.sol (Online Sales & Escrow Engine):** Manages the lifecycle of an online sale.
- **VendorPOS.sol (In-Person Sales Engine):** Lightweight contract for instant, real-world payments.
- **VendorRegistry.sol (Identity Contract):** An access-controlled list of vendor addresses.

IV. Tokenomics & Fees

LMKT Initial Supply: A substantial initial supply of LMKT is minted upon deployment, with all of it sent to the Treasury. The supply is elastic, as the Treasury can mint new tokens under specific conditions.

Platform Fee: A small, universal fee is applied to every transaction (both online and POS), paid by the buyer. 100% of this revenue is routed directly to the Treasury, increasing its collateral and bolstering the resilience of the market.

Fee Split: This fee is automatically split between the Treasury and the seller to align incentives.

Listing Fees: Sellers pay a modest fee in an equivalent USD value of LMKT to list items or services. This revenue is also sent entirely to the Treasury, directly contributing to the backing of LMKT and the overall strength of the ecosystem.

V. The Autonomous Treasury & The Collateral-Backed Price

The Treasury's primary function is to create a transparent and resilient value for LMKT based on its own internal reserves.

The "Collateral-Backed Price" Formula: The true value of LMKT is determined by the on-chain formula:

```
LMKT Price = (Total USD Value of All Whitelisted Collateral in
Treasury) / (Total Circulating Supply of LMKT)
```

Price Band: The Treasury uses a narrow spread to generate revenue.

- Treasury Sale Price: Collateral-Backed Price plus a small premium.
- Treasury Buy-Back Price: Collateral-Backed Price minus a small discount.

Elastic Supply Mechanics:

- **Minting:** This function is designed as a long-term stabilizing mechanism. It will only be triggered automatically after the massive initial supply is exhausted. At this advanced stage, with a Treasury holding substantial assets, this controlled minting will slow exponential value accrual, ensuring the LMKT token remains a usable and stable medium of exchange for the market.
- **Burning:** When a user sells LMKT back to the Treasury, the received LMKT tokens are automatically burned, reducing the circulating supply.

Initial Liquidity: The development team will provide the initial liquidity on a decentralized exchange to establish the market and match the Treasury's price floor.

VI. Frontend DApp & User Interaction Flow

The DApp is a decentralized application that facilitates peer-to-peer (P2P), wallet-to-wallet transactions. It allows buyers to purchase goods and services with the whitelisted token of their choice (including the native LMKT token, blue-chip tokens like BTC and ETH, natives to each blockchain Liquid Liberty is deployed on, and stablecoins). Sellers, in turn, can cash out with their preferred whitelisted token. This whitelist mechanism is crucial for preventing manipulation of the system with tokens of questionable value, ensuring the integrity of the marketplace.

- **Access Check:** The DApp will first check the user's wallet for a minimum LBRTY balance before granting access to the marketplace.
- **The Dashboard:** Will feature an interactive "My Listings" command center and professional charts for portfolio and system health.
- **Vendor List:** A list of all real-world vendors, their services or goods offered, and their location via a map application.

VII. On-Chain Security

DApp Interaction Enforcement: To ensure all critical marketplace interactions occur through the intended user interface, the Treasury and PaymentProcessor contracts will require signed messages for key functions. This prevents direct, unauthorized contract interaction and protects the established user flow.

VIII. Technology & Development Stack

Smart Contracts:

- Language: `Solidity`
- Framework: `Hardhat`
- Core Libraries: `OpenZeppelin Contracts`

Frontend DApp:

- Framework: `React`

- Build Tool: `Vite`
- Styling: `Tailwind CSS`
- Routing: `React Router DOM`

Wallet & Blockchain Interaction:

- Core Library: `wagmi` (with `viem`)
- Wallet Connector: `Web3Modal`
- Data Caching: `TanStack Query`

Charting:

- Library: `lightweight-charts`