



LUNC PREDICTION MARKET

Decentralized Prediction Markets on Terra Classic

A trustless, non-custodial prediction market protocol built on the Terra Classic blockchain (columbus-5). All funds are secured by a CosmWasm smart contract — transparent, immutable, and verifiable by anyone.

Version	Network	Contract	Fee Structure
1.0	Terra Classic (columbus-5)	CosmWasm v1.2	2% Platform / 1% Trader Rewards

Table of Contents

1	Executive Summary	3
2	Introduction & Vision	3
3	Platform Architecture	4
4	Smart Contract — Deep Dive	4
5	Security Model	6
6	Fee Structure & Trader Reward Program	7
7	How to Use LUNC Prediction Market	8
8	Tokenomics & Fee Flow	9
9	Roadmap	10
10	Risk Disclosure	11
11	Technical Appendix	11

1

Executive Summary

LUNC Prediction Market is a decentralized prediction market protocol deployed on Terra Classic (columbus-5). It allows any user holding LUNC to place on-chain wagers on the outcome of real-world events — from cryptocurrency price milestones to governance votes and DeFi metrics. All capital flows directly through a CosmWasm smart contract; no funds ever pass through a centralized custodian.

The protocol charges a 2% platform fee on gross winnings at the time of claim. Of this, **1% is redistributed to active traders** as a reward for their participation, while 1% is retained by the platform treasury to fund ongoing development and operations.

Key Highlights

- Fully non-custodial — all funds secured in immutable CosmWasm contract
- Proportional payout model — odds determined by pool ratios, not a house
- 1% of platform revenue redistributed to active traders each epoch
- Admin-only market creation with oracle-controlled resolution
- Automatic refund mechanism if oracle fails to resolve within deadline
- Built on Terra Classic — low fees, fast finality, proven chain

2

Introduction & Vision

The Problem with Traditional Prediction Markets

Traditional prediction markets suffer from three core deficiencies: centralized custody of user funds (counterparty risk), opaque fee structures that favor the house, and geographic restrictions that exclude large portions of the global population. Users must trust that the operator will pay out correctly — a promise that has been broken repeatedly throughout the industry's history.

The LUNC Prediction Market Solution

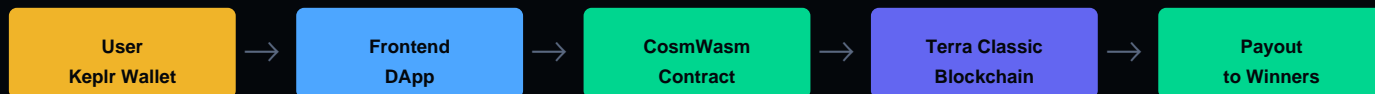
LUNC Prediction Market eliminates the trust problem by encoding all market logic in a CosmWasm smart contract on Terra Classic. The contract is the escrow, the oracle, and the payout engine. No single party — not even the platform administrators — can access user funds outside of the defined contract rules. Every bet, every resolution, and every payout is recorded permanently on the blockchain and auditable by anyone.

Why Terra Classic?

Terra Classic offers a mature CosmWasm environment with deep liquidity in LUNC, a large and engaged community, and transaction fees that are a fraction of a cent. The chain has processed billions of transactions and demonstrated sustained uptime. Building on Terra Classic aligns LUNC Prediction Market with the community's goal of restoring utility to the network.

3

Platform Architecture



The architecture consists of four layers. The **presentation layer** is a static HTML/JavaScript single-page application that communicates with the user's Keplr wallet and the Terra Classic LCD endpoint — it requires no backend server and can be hosted on any static file host or IPFS. The **wallet layer** is Keplr, which handles private key management and transaction signing entirely client-side. The **contract layer** is the CosmWasm smart contract that enforces all business logic on-chain. The **chain layer** is Terra Classic itself, providing consensus, finality, and permanent storage.

Frontend	Static HTML + JavaScript, no backend, deployable on any web host
Wallet	Keplr browser extension — SIGN_MODE_DIRECT, non-custodial
RPC / LCD	terra-classic-rpc.publicnode.com:443 (public endpoint)
Smart Contract	CosmWasm v1.2 on columbus-5
Language	Rust — compiled to WebAssembly (WASM) via rust-optimizer
Tx Signing	Protobuf-encoded, SIGN_MODE_DIRECT, secp256k1

4

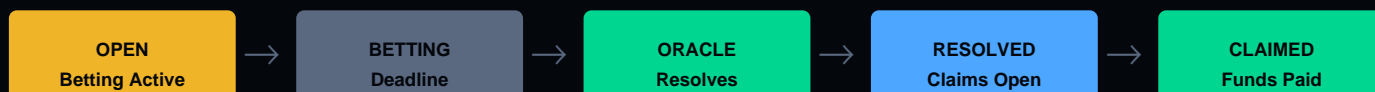
Smart Contract — Deep Dive

Contract Storage Model

The contract uses **cw-storage-plus** for typed, gas-efficient on-chain storage. Two primary storage maps hold all state:

- **MARKETS** — keyed by `u64 market_id`. Stores title, description, deadlines, status, pool totals, and resolved outcome.
- **BETS** — keyed by `(market_id, &bettor;_address)`. Stores side, amount, and claim status.
- **USER_MARKET_INDEX** — keyed by bettor address, stores list of market_ids for efficient portfolio queries.

Market Lifecycle



Status	Description
open	Market is accepting bets. Users can PlaceBet.
paused	Admin has temporarily halted betting. Existing bets unaffected.
resolved_yes	Oracle confirmed YES outcome. YES bettors may claim winnings.
resolved_no	Oracle confirmed NO outcome. NO bettors may claim winnings.
refund	Resolution deadline passed without oracle action. Full refunds available.

Payout Formula

LUNC Prediction Market uses a **proportional pool model** — similar to parimutuel betting — rather than fixed odds. This means the odds are determined entirely by market participation, not by a bookmaker.

Formula	Description
$gross = stake \times (total_pool / winning_side_pool)$	Before fee deduction
$fee = gross \times fee_bps / 10,000$	Platform fee (200 bps = 2%)
$net_payout = gross - fee$	Amount sent to winner's wallet

Example Payout Calculation

Market: Will LUNC reach \$0.0001 before July 2025?
 Total pool: 20,000,000 LUNC (YES: 12,000,000 | NO: 8,000,000)
 Alice bet: 1,000,000 LUNC on YES (outcome: YES wins)
 Gross payout = $1,000,000 \times (20,000,000 / 12,000,000) = 1,666,667$ LUNC
 Fee (2%) = $1,666,667 \times 0.02 = 33,333$ LUNC
 Net payout = $1,666,667 - 33,333 = 1,633,334$ LUNC
 Alice's profit: +633,334 LUNC on a 1,000,000 LUNC stake (1.63x return)

Execute Messages (Contract API)

Message	Description
CreateMarket	Admin only. Creates a new prediction market with title, description, category, betting deadline, and resolution deadline.
SetMarketStatus	Admin only. Pauses or reopens a market (status: 'open' 'paused').
UpdateConfig	Admin only. Updates oracle address, fee rate, treasury wallet, or min/max bet limits.
ResolveMarket	Oracle only. Closes a market with a boolean outcome (true=YES, false=NO). Unlocks claims.
TriggerRefund	Anyone. If resolution deadline passes without oracle action, switches market to refund mode.
PlaceBet	Any user. Sends uluna funds to the contract and records a YES or NO position.
Claim Winnings	Any winning bettor. Triggers proportional payout calculation and transfers funds.

5

Security Model

Security is the primary design principle of LUNC Prediction Market. Every potential attack vector was considered during contract design, and multiple layers of protection have been implemented at the contract level.

Non-Custodial Architecture

- No admin key can withdraw user funds
- Funds only leave contract via Claim Winnings or Trigger Refund
- Even the contract deployer cannot override payout logic
- All fund movements require on-chain transaction signed by beneficiary

Access Control

- Admin address set at instantiation — only admin can create/pause markets
- Oracle address independently configured — only oracle can resolve
- Admin and oracle can be the same or different wallets
- UpdateConfig function allows rotating oracle without redeployment

Overflow Protection

- All arithmetic uses Rust's checked_mul / checked_div / checked_sub
- Overflow errors return ContractError::Overflow — transaction reverts cleanly
- u128 integer math — no floating point rounding errors
- Fee basis points capped at 1000 (10%) — enforced in contract

Double-Claim Prevention

- Each bet record has a 'claimed' boolean flag
- Claim Winnings checks and sets flag atomically
- Second claim attempt returns Already Claimed error
- Refund path also uses same claimed flag

Deadline Enforcement

- Betting deadline validated against block timestamp — not user-supplied
- Resolution deadline enforced — oracle cannot resolve before betting ends
- Trigger Refund available to anyone after resolution deadline passes
- No oracle = automatic full refund — users never lose funds to inaction

Front-Running Resistance

- Proportional pool model — final odds not known until deadline
- No 'last minute' advantage — bet size relative to pool determines payout
- All bets are recorded on-chain — transparent and auditable
- No miner-extractable-value (MEV) in Terra Classic architecture

Smart Contract Audit Status

Security Commitment

The LUNC Prediction Market smart contract source code is publicly available on GitHub

A formal third-party security audit is planned as part of Phase 2 development

Community review and bug bounty program will be announced on launch

Contract code is compiled with cosmwasm/rust-optimizer for reproducible builds

Contract checksum (SHA-256) published alongside each deployment

6

Fee Structure & Trader Reward Program

Platform Fee Overview

LUNC Prediction Market charges a **2% fee on gross winnings** at the time of claim. This fee is deducted automatically by the smart contract — losers pay nothing beyond their original stake. The fee is split into two streams:

Fee Stream	Allocation	Purpose
Platform Treasury	1% of gross winnings	Funds development, infrastructure, marketing, operations
Trader Reward Pool	1% of gross winnings	Redistributed to active traders — see reward program below
Total Fee	2% of gross winnings	Deducted at claim time — zero fee for losing bettors

Trader Reward Program — 1% Revenue Share

How the Trader Reward Program Works

1% of all platform gross winnings accumulates in the Trader Reward Pool each epoch

At the end of each epoch, the pool is distributed pro-rata to all active traders

Allocation is based on each trader's share of total LUNC volume in that epoch

Active trader = any wallet that placed at least one bet during the epoch

Rewards are claimable directly from the contract — no manual distribution

Formula: $\text{reward} = (\text{your_volume} / \text{total_epoch_volume}) \times \text{epoch_reward_pool}$

The trader reward program is designed to incentivize sustained participation and loyalty to the platform. Unlike airdrops or speculative token rewards, the reward pool is funded entirely by real platform revenue — ensuring it scales proportionally with platform growth. A trader who bets 100,000 LUNC in a month where the platform processes 10,000,000 LUNC total volume receives 1% of 1% of gross winnings from that volume — a concrete, predictable reward.

Example Reward Calculation

Epoch duration: 1 month

Total platform volume: 50,000,000 LUNC gross winnings

Reward pool (1%): 500,000 LUNC

Trader A volume: 5,000,000 LUNC (10% of total)

Trader A reward: 50,000 LUNC

Trader B volume: 1,000,000 LUNC (2% of total)

Trader B reward: 10,000 LUNC

7

How to Use LUNC Prediction Market

For Traders (Bettors)

Step 1	Install Keplr browser extension and add Terra Classic (columbus-5) to your chain list.
Step 2	Acquire LUNC. Ensure your wallet has at least 10 LUNC plus gas fees.
Step 3	Open the LUNC Prediction Market web application and click 'Connect Keplr'.
Step 4	Browse the prediction markets. Each market shows current YES/NO odds, total pool, and time remaining.
Step 5	Click YES or NO on a market. Enter your LUNC stake and confirm in Keplr.
Step 6	Wait for the market deadline and oracle resolution. Check your Portfolio tab.
Step 7	If you won, click Claim in your Portfolio. Winnings are sent directly to your wallet.

For the Admin / Oracle

Create Market	Admin Panel -> fill title, description, category, duration -> Create Market On-Chain -> sign in Keplr.
Resolve Market	After betting deadline: Admin Panel -> Resolve Markets table -> click YES or NO -> sign in Keplr.
Pause Market	Admin Panel or terrad CLI: SetMarketStatus with status='paused' to halt new bets.
Update Config	terrada CLI: UpdateConfig to change oracle address, fee rate, or bet limits post-deployment.

Supported Environments

Web: Open the lunc-prediction-market-english.html file from any web server (not file://)

Keplr: Version 0.12.x or higher required for SIGN_MODE_DIRECT support

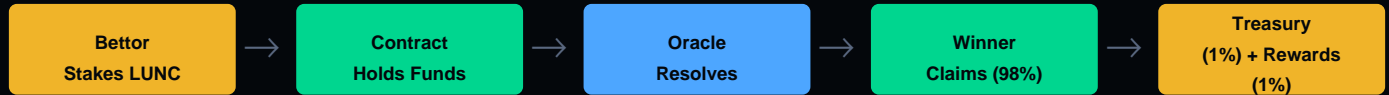
Network: Requires access to terra-classic-lcd.publicnode.com (REST LCD)

Chain: columbus-5 only — testnet not currently supported

8

Tokenomics & Fee Flow

LUNC Prediction Market does not issue its own token. The platform is entirely denominated in **LUNC (Terra Classic Luna)** — the native token of the Terra Classic chain. This eliminates token speculation risk, reduces regulatory complexity, and ensures that all value flows benefit the Terra Classic ecosystem directly.



LUNC Ecosystem Benefits

Every transaction on LUNC Prediction Market contributes to the Terra Classic ecosystem:

- **Transaction fees** — each PlaceBet, ClaimWinnings, and ResolveMarket transaction pays gas in LUNC, contributing to validator rewards and the LUNC burn mechanism.
- **Locked liquidity** — funds held in prediction markets are locked in the contract until resolution, reducing circulating supply temporarily.
- **Utility** — LUNC Prediction Market provides a genuine use case for LUNC beyond speculation, demonstrating the chain's CosmWasm capabilities.
- **Community engagement** — prediction markets on LUNC governance topics create direct incentives for community members to stay informed and engaged.

9

Roadmap

LUNC Prediction Market is in its **initial launch phase**. The platform is live and functional on Terra Classic mainnet. The roadmap below outlines our development trajectory — starting from the current working foundation and expanding into a comprehensive prediction market ecosystem.

PHASE 1

Foundation (Current)

LIVE NOW

- Smart contract deployed on columbus-5
- Web frontend with Keplr wallet integration
- Admin Panel for market creation and resolution
- On-chain leaderboard with live data
- 2% fee structure (1% treasury / 1% trader rewards)
- Market categories: LUNC, CRYPTO, DEFI

PHASE 2

Platform Maturity

PLANNED

- Formal third-party smart contract security audit
- Trader Reward Program smart contract — automated epoch distribution
- Mobile-optimized frontend and PWA support
- Market category expansion: Sports, Politics, Real-World Events
- API documentation for third-party integrations
- Bug bounty program launch

PHASE 3

Ecosystem Expansion

PLANNED

- Multi-resolution oracle system (community voting on outcomes)
- Liquidity incentive program for large market makers
- LUNC Prediction Market SDK for developers to embed markets in other dApps
- Historical analytics dashboard with market statistics
- Automated market creation based on price feeds
- Cross-chain compatibility exploration (IBC)

PHASE 4

Decentralization

FUTURE

- Governance module — LUNC holders vote on platform parameters
- Decentralized oracle network — community-driven resolution
- DAO treasury management for platform revenue
- Open-source market creation — any verified user can propose markets
- Layer-2 scaling for high-frequency micro-bet markets
- Mobile native app (iOS & Android)

10

Risk Disclosure

Important Risk Factors

Smart contract risk: Despite careful design, undiscovered bugs may exist prior to formal audit

Oracle risk: Market resolution depends on admin/oracle honesty and availability

Blockchain risk: Terra Classic network outages or governance changes may affect operations

Regulatory risk: Prediction markets may be regulated or restricted in your jurisdiction

Liquidity risk: Low participation markets may result in unfavorable odds or low payouts

LUNC price risk: All stakes and payouts are in LUNC — exposed to LUNC price volatility

This platform is experimental — only use funds you can afford to lose

LUNC Prediction Market is a technology protocol, not a financial service provider. The platform does not offer investment advice, financial guidance, or guarantees of any kind. Participation in prediction markets should be considered high-risk speculation. Users are solely responsible for compliance with the laws and regulations applicable in their jurisdiction.

11

Technical Appendix

Contract Query Reference

Query	Returns
Config {}	Returns oracle, admin, treasury, fee_bps, min_bet, max_bet
Market { market_id }	Returns full market state including pool totals and live odds
Markets { start_after, limit }	Paginated list of all markets (max 50 per call)
Bet { market_id, bettor }	Returns a specific bet record
UserBets { bettor, limit }	All bets placed by a wallet address
SimulatePayout { market_id, side, amount }	Calculates expected net payout before placing a bet

Deployment Parameters

Chain ID	columbus-5
Contract Language	Rust (edition 2021), CosmWasm 1.2.7
WASM Optimizer	cosmwasm/rust-optimizer:0.15.1
Gas Price	28.325 uluna/gas
Min Bet	1,000,000 uluna (1 LUNC)
Max Bet	10,000,000,000 uluna (10,000 LUNC)
Platform Fee	200 basis points (2%)
Fee Cap	1,000 basis points (10%) — enforced in contract

Useful Links

Terra Classic Explorer	https://finder.terraclassic.community/columbus-5
Terra Classic LCD	https://terra-classic-lcd.publicnode.com
CosmWasm Documentation	https://docs.cosmwasm.com
Keplr Wallet	https://www.keplr.app
Terra Classic Discord	https://discord.com/invite/terra