0xCommit

# Crypto Economic Audit Report

SOEX

Version: Final

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# Introduction

## Purpose of this report

0xCommit has been engaged by **SOEX - Solana Programs** to perform a security audit of several Solana Programs components.

The objectives of the audit are as follows:

1. Determine the correct functioning of the protocol, in accordance with the project specification.
2. Determine possible crypto economics issues.

This report represents a summary of the findings.

# Artifacts Submitted

The audit has been performed on the following GitHub repositories:

| No | List of documents subbmited |
|---|---|
| 1 | SOEX Whitepaper |
| 2 | Existing scale check of tokenomic model 2 |
| 3 | SOEX 3.0 |

# Overview

## Methodology

The audit has been performed in the following steps:

1. Gaining an understanding of the protocol by reading the available documentation.
2. Understand the tokenomics and other crypto economic aspect of the protocol and identify issues and corrective measures.

# Executive Summary

SOEX is a community-focused protocol implementing a complex tokenomics system with multiple interconnected mechanisms including community creation (CVT), identity tokens (HVT), staking, and liquidity provision. The protocol uses a fair launch mechanism with a total supply of 2.1 billion SOEX tokens.

# Key Metrics & Parameters

## Token Distribution

- Total Supply: 2.1 billion SOEX
- Initial SOEX Price: 0.05 USDT
- Initial Liquidity: 200,000 SOEX + 66.67 SOL (≈$10,000 worth)

## Token Allocation:

- LP Pool: 10%
- Stake HVT: 30%
- Create CVT: 20%
- Treasury + DAO: 15% (12% Treasury, 3% DAO)
- Team: 10%
- Investors (Including 2% OG): 15%

# Detailed Analysis

## 1. Token Release Mechanism

Strengths:

- Implements a diminishing release function

Risks:

- Complex release schedule might be difficult for users to understand
- Potential for early holder advantage due to higher initial distributions
- Emission rate for SOEX to CVT and HVT holders is very high leading to sell pressure

## 2. CVT (Community) Economic Model

Strengths:

- Floor price mechanism (5 SOL minimum)
- Dynamic pricing with both increase and decrease functions
- Clear fee distribution structure

Risks:

- Price increase function complexity could lead to timing exploitation
- Possibility of price manipulation during low liquidity periods
- High emission can be counter intuitive leading to substantial downward price movement

## 3. Liquidity Management

Strengths:

- Automated LP addition (25% of mint fees)
- Locked liquidity pool requirement
- Incentivized LP staking program

Concerns:

- Initial liquidity ($10,000) may be insufficient for market stability
- External LP staking carries impermanent loss risk with no slippage limits
- Will need to engage market maker to ensure price stability

## 4. Social Tree & Referral System

Strengths:

- Multi-tiered reward structure
- Clear distribution percentages:
    - Direct referral: 100 SOX
    - First layer: 40 SOX
    - Second/Third layers: 30 SOX each

Risks:

- Complex reward structure could lead to gaming
- Potential for Sybil attacks through multiple accounts
- Uncapped distribution of SOX points

### 5. Staking Mechanism

Strengths:

- Dual token staking (SOEX/SOL)
- TVL-based distribution
- Clear reward hierarchy

Risks:

- Complex distribution could lead to calculation errors
- Multiple claim points increase transaction costs for users

## Security Considerations

### High-Risk Areas:

1. Price manipulation during low liquidity periods
2. Complex release schedule implementation
3. Multiple interaction points for claiming rewards
4. Social tree gaming potential
5. Sybil resistance missing in some key areas like SOX points and CVT and HVT sales

### Medium-Risk Areas:

1. Protocol fee accumulation and distribution
2. LP token staking mechanics
3. HVT transfer and burning mechanisms

# Economic Sustainability Analysis

## Positive Factors:

1. Built-in deflationary mechanisms through burns
2. Multiple revenue streams for treasury
3. Incentivized community building
4. Linear vesting for team and investors

## Concerns:

1. Heavy reliance on continuous community growth
2. Complex interconnected mechanisms increase system risk
3. Initial liquidity may be insufficient

# Recommendations

## High Priority:

1. Increase initial liquidity pool size
2. CVT and HVT emission of SOEX tokens should be over larger time frames to reduce the down side sell pressure.
3. Implement anti-gaming measures for social tree
4. Introduce Multiple CVT Sales epoch which lead to sustained community engagement
5. For SOX points keep a cap on each users emission to prevent sybil attack from CEX side
6. Redefine the burning process by buying back tokens and locking it into liquidity for better price control.

## Medium Priority:

1. Add liquidity bootstrapping period
2. Implement gradual fee adjustment mechanism
3. Create clearer documentation for complex mechanisms
4. Add monitoring systems for key metrics

## Low Priority:

1. Consider simplifying some reward structures
2. Add community governance for parameter adjustments
3. Implement additional analytics dashboards

# Technical Implementation Considerations

## Critical Areas:

1. Token release calculation precision
2. Price function implementation accuracy
3. Reward distribution calculations
4. LP token staking contract security

## Recommendations:

1. Implement comprehensive testing for all mathematical functions
2. Add fail-safes for critical operations
3. Include circuit breakers for unusual activity
4. Regular auditing of reward distributions

# Supporting Documents

- SOEX CVT minting Epochs

# Risk Rating Matrix

| Component | Risk Level | Impact | Probability |
|---|---|---|---|
| Token Release | Medium | High | Low |
| Liquidity | High | High | Medium |
| Social Tree | Medium | Medium | High |
| Staking | Medium | High | Medium |
| Price Mechanism | High | High | Medium |

# Conclusion

The SOEX protocol presents an innovative but complex economic model. While the basic framework appears sound, the interconnected nature of its mechanisms creates multiple points of potential failure. Success will heavily depend on careful implementation and active community participation.

The protocol shows promise in its approach to community-driven growth but requires careful consideration of the identified risks and implementation of the suggested safeguards to ensure long-term sustainability.