Review of Endowment Creation & Treasury Management Policy - 5 Year Plan Analysis

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About Nomiks

Nomiks is a Geneva-based Web3 analytics firm that specializes in token-economics design, auditing, and risk management. Its multidisciplinary team of economists, engineers, and data scientists develops both advisory services and a SaaS platform that lets blockchain projects model, stress-test, and actively monitor their token economies from pre-TGE design through post-launch oversight. By combining simulation-driven analytics with practical governance and liquidity tooling, Nomiks helps protocols and investors build durable, investment-grade token ecosystems and avoid hidden economic risks.

Stacks – Endowment Treasury Analysis

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0 | Executive Summary

The Stacks ecosystem is looking to assess the viability of creating an ecosystem treasury over the next five years while respecting a 7% total annual inflation ceiling, based on analysis of other ecosystems and their respective inflation levels.

This document presents a **worst-case, five-year stress view** of the Stacks fund-raising plan. All token unlocks, incentive budgets, and market-liquidity tests are squeezed into the 2025-2030 window even though the Endowment's operational roadmap stretches beyond the next decade. By assuming everything happens faster than it realistically will, we guarantee that the headline results err on the side of caution.

Three independent work-streams underpin this report:

- **Price-Impact & Emission Strategy** – a market-micro-structure simulation that measures how different vesting patterns and daily caps affect the STX price trajectory over 5 years .
- **Treasury-Survival Analysis** – Monte-Carlo runway simulations that estimate the Endowment's likely minimum STX balance, assuming half of the tokens raised are pre-converted into USD to cover operating expenses, across a spectrum of spot-price scenarios
- **Fundraising Feasibility & Inflation Modeling –** simulation of emission schedules designed to stay within a 7% total annual inflation cap, including both **PoX emissions and endowment-related unlocks**, combined with scenario-based projections of USD raised from token sales across multiple STX price points, to assess whether treasury needs can be sustainably met.

Year	Total Inflation (incl Treasury & PoX)
Initial Mint (100M)	6.58%
Year 1	7%
Year 2	7%
Year 3	7%
Year 4	3.98%
Year 5	3.46%
Average Yearly Emissions	5.75%
Total Average Yearly Inflation w/ Initial Mint	7.004%

Disclaimer: All projections and analyses in this report are provided for informational purposes only and do not constitute investment advice.

Key conclusions:

- **Limit new tokens coming to market to no more than $360k USD per 5 days.** Large, one-off token dumps hammer the price and spike volatility and our analysis concludes that to minimize this impact, no more than ≈ USD 360 k worth of new tokens reach the market in any five-day span. Enforcing that cap with an 18- to 24-month linear vesting schedule and gradually increasing emissions over time keeps the median price impact below 2 %.
- Within the 4% additional and 7% total annualized inflation guardrail (which keeps the Stacks inflation rate below the majority of Top 50 projects), the new Endowment structure enables upfront capital deployment of **200M STX**, split equally between working capital for deployments and tokens to be sold via OTC/private placement with lockups to raise the initial operational capital. Of this, up to **$68–136M** can be raised through a **tranche-based investor token sale**, assuming STX trades at or above **$1.00 per token**. The **Beta-shaped unlock curve** concentrates earlier investor vesting at lower discounts, maximizing capital efficiency while maintaining strict inflation discipline.
- The simulation confirms that **disciplined emission pacing** can satisfy full treasury needs over five years, as long as STX trades near or above baseline price levels. At lower price points (e.g. $0.50), funding shortfalls arise despite compliant inflation. This underscores the importance of **coordinating investor unlocks with protocol emissions**, ensuring that the aggregate token release remains aligned with both inflation caps and strategic liquidity targets.

  Because the study front-loads both costs and unlocks, any decision to **slow emissions, recycle un-spent STX, or hedge OPEX** will lengthen runway and ease price pressure. In short, the report shows the Endowment can survive and even thrive under highly compressed conditions; the actual, more gradual execution path should look materially better.

1 | Introduction & Context

Stacks is entering a capital-intensive growth phase in the growth of it's ecosystem, especially around DeFi: involving substantial new core development, marketing pushes, builder grants, and liquidity provisioning. Most of the circulating STX is already released; fresh capital therefore implies minting beyond the current trajectory.

It is important to stress that every figure in this study is anchored to a deliberately short, five-year horizon. We have treated the period 2025-2030 as if it were the entire economic life-cycle of the raise, even though the Endowment's actual intent is to stretch token emissions well beyond those five years. By starting from a "worst-case compression" of runway and liquidity, we ensure that any future extension of vesting schedules or phased unlocks will only improve the headline metrics shown here.

The fund-raise must balance three forces:

1. **Price Stability** – avoid large draw-downs that deter holders and future investors.
2. **Operational Liquidity** – guarantee predictable fiat coverage for salaries and grants.
3. **Inflation Discipline** – stay below an 7% supply increase (including the existing coinbase reward) per year to keep in line / ahead of other top 50 ecosystems.

2 | Scope & Objectives

This report purposefully adopts a **five-year, high-stress lens**. All three work-streams price impact, treasury survival, and inflation-compliant fund-raising are modelled as if the entire fund-raise must be absorbed by the market and spent by the Endowment within sixty months. In practice we expect to **defer and taper** a material share of emissions into years 6-10; therefore, every red-flag you see in the following pages should be read as a **"hard-brake" scenario** rather than a limit on what the project can achieve under a more gradual, real-world roll-out.

- **Time horizon:** 5 years (2025-2030).
- **Work-stream A:** quantify price impact under multiple emission strategies.
- **Work-stream B:** measure the probability that the Endowment's STX treasury runs out, given spot-price paths and OPEX shocks.
- **Feasibility synthesis:** map the overlap between "price-safe" emission volumes and "runway-safe" treasury sizes to define the **capital-raise envelope**.
- **Tokenomics feasibility modeling**: design and validate token emission schedules that respect a 7% annual inflation cap,
- **Simulation** : simulate fundraising outcomes across token price scenarios ($0.5, $1.0, $2.0, $4.0), and identify deal structures and emission configurations that ensure treasury coverage while maintaining market sustainability.

3 | Common Assumptions

Before the two analytical work-streams diverge, we lock in a single, shared parameter set so that price-impact results and treasury-runway results can be compared on equal footing. The reference spot-price is the Q1-2025 market print (≈ 0.74 USD), while forward stress-tests are run at four fixed levels 0.50, 1, 2 and 3.84 USD (the previous all time high for STX) to bracket plausible bear and bull regimes. Daily market depth starts at 2 million USD, regenerating at 80 percent per day; these numbers come from Kaiko order-book snapshots and are identical to those used in the REV00 price study. The Endowment's operating plan remains approximately 80 million USD of cash outflow per year, plus unless otherwise stated 20 million STX of token incentives. We assume a 10 percent standard deviation around the cash budget to reflect routine overruns, and we honour the 4 percent annual inflation ceiling when sizing any new token sale. The survivability analysis is anchored on a 100 million STX treasury balance for operations.

The parameter grid below intentionally **front-loads cost and compresses liquidity** to paint the treasury in its most vulnerable light. For example, the OPEX volatility (±10 %) and the constant-price stress points ($0.50–$3.84) assume no operational hedging, no dynamic FX

management, and no delayed unlocks after Year 5. Internally, our planning horizon extends at least ten years; any decision to roll forward un-spent tokens, pause unlocks during adverse markets, or spin up additional non-dilutive revenue will **soften these numbers considerably**.

Parameter	Value	Rationale	Source
Initial STX price	0.735 USD	Market spot Q1-2025	REV00 assumptions
Market depth Day 0	2 M USD	Kaiko order-book data proxy	REV00 §3.1
Absorption rate	80 % / day	Liquidity regeneration	REV00 §3.1
Annual USD OPEX	80 M USD	Salaries, marketing, grants	Estimates from comparisons to other top ecosystems
Native-token OPEX	20 M STX (base); 0 STX (variant)	Incentive pool	Estimates from comparisons to other top ecosystems
Deployable STX	100 M STX	Current earmark	meeting deck
additional / total Inflation cap	4% / 7% p.a.	Target	Analysis of inflation rates from Top 50 Ecosystems

4 | Work-stream A — Price-Impact / Emission Strategy Review

This work-stream asks a single question: *How much downward pressure does a planned token sale exert on the STX price, and how can vesting mechanics soften the blow?* We model the spot price as a geometric Brownian motion over five years and superimpose additional drift and volatility penalties whenever scheduled token unlocks exceed observable market depth. Four emission patterns are tested: one-off lump release and three linear-vesting schedules spanning 12, 18 and 24 months, each subject to a rolling 360-thousand-USD five-day sales cap. By measuring median draw-down, tail volatility and time-weighted liquidity usage, we score each scenario for price stability, investor fairness and market absorbability—metrics that later feed into the fund-raising feasibility matrix.

The emission schedules evaluated here cram an entire decade of potential unlocks into a **single five-year evaluation window**. This means the model is effectively asking: *"What if we released tokens twice as fast as we actually plan to?"* The resulting price-impact scores therefore represent a **ceiling on possible damage**, not a forecast. In the live roll-out we will re-optimise vesting cadence every quarter, pushing residual supply further into the future whenever market conditions are thin.

4.1 Model Framework

- **Geometric Brownian Motion** (GBM) for base price path.
- **Liquidity shock penalty**: daily drift ↓, volatility ↑ when 5-day sales exceed depth

We represent the token price PtP_tPt via a **stochastic process**:

- $\frac{dP_t}{P_t} = \mu\, dt + \sigma\, dW_t,$

where μ is the drift (annualized), σ is the volatility, and Wt is a Wiener process. In discrete daily steps Δt=1/365, we update:

- $P_{t+1} = P_t\, exp\left(\left(\mu - 1/2\,\sigma^2\right)\Delta t + \sigma\sqrt{\Delta t}\, Z\right),$

where Z~N(0,1). This forms the baseline price movement.

How the model works: Steps per Simulation Day

Carry Over Leftover Liquidity

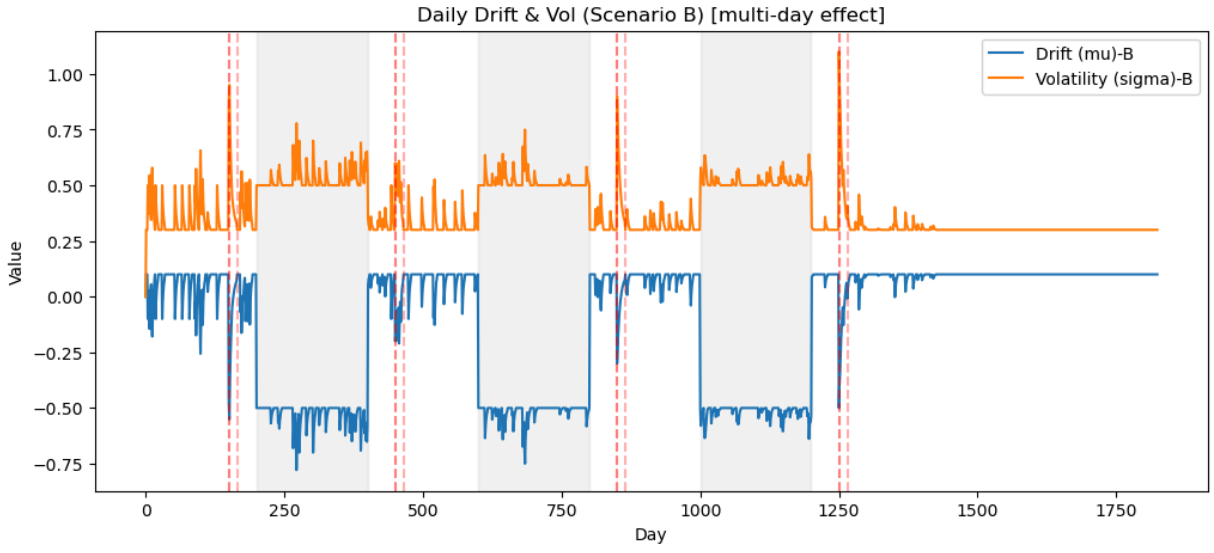
Each morning, we begin with whatever **liquidity** remained from the previous day. This leftover liquidity is the amount of money (in USD) available to absorb sales without drastically moving the price.

Accumulate Multi-Day Shock

We look at how much was sold on the **previous few days** compared to the liquidity available on those days. We combine those daily ratios, typically over the last five days, reducing their influence day by day. If recent sales volumes were especially large, the result will be a "shock" that affects today's price behavior.

Adjust Drift and Volatility

Every day has a **base drift** (reflecting whether the market tends to go up or down in normal conditions) and a **base volatility** (the magnitude of typical day-to-day price swings). If the "shock" from the recent large sales is high, we **push the drift downward** (making it more likely the price declines) and **raise the volatility** (making price swings bigger). Conversely, if recent sales were moderate, the daily shock remains small, and the base drift and volatility aren't heavily penalized.



Draw a Random Shock

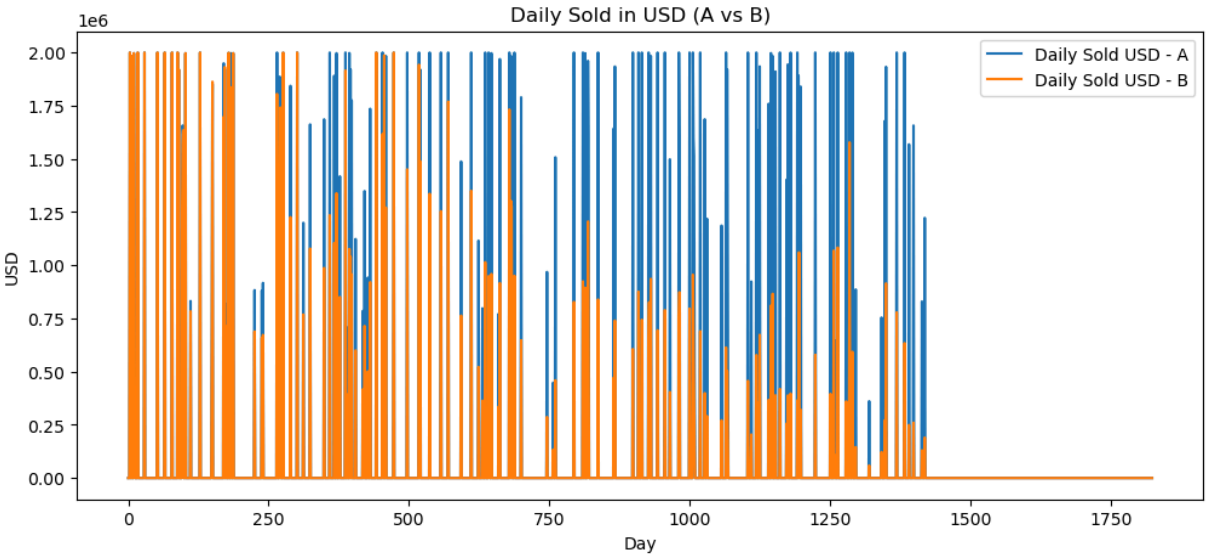
To reflect real market unpredictability, we pick a **random factor** each day (like a coin flip but normally distributed). This captures how real-world markets can go up or down for reasons beyond the scope of our model.

Update the Price

Using the adjusted drift and volatility (and today's random factor), we compute a **new price** for the token. If the drift is sharply negative and volatility is high, the price might drop significantly; if the drift is steady or positive, and there's less volatility, the price might stabilize or rise.

Sell or Buy Tokens

Each day, different groups (e.g., incentives, marketing, team allocations) receive or decide to sell a certain portion of their scheduled tokens. We calculate how many tokens that is, convert them to USD at the current day's price, and sum them for the day's total sales.

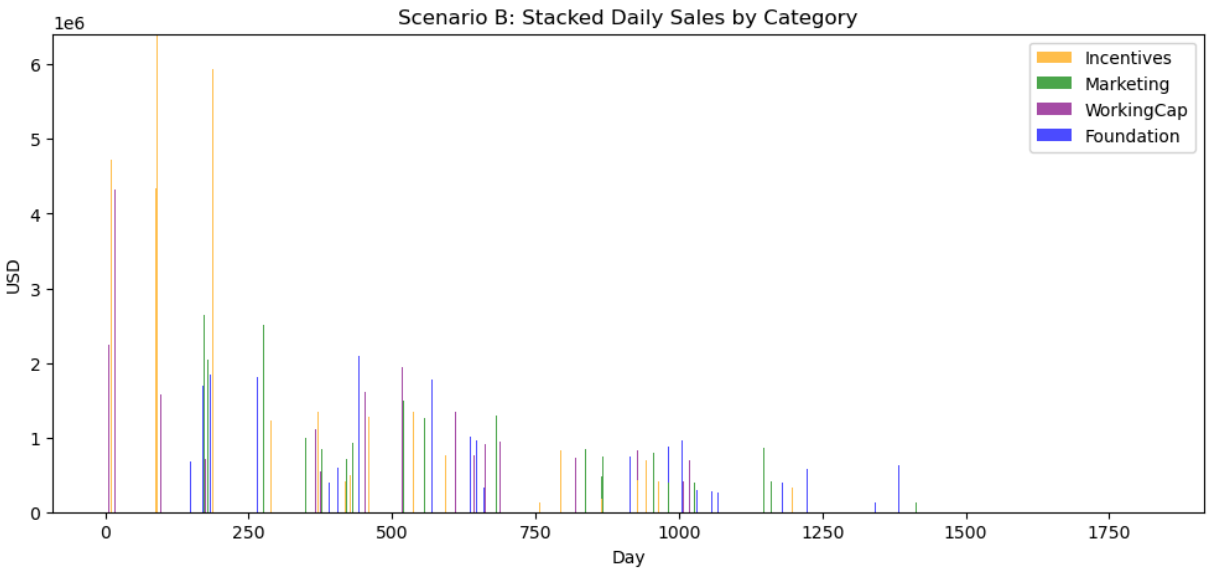


Consume Leftover Liquidity

The day's total sales in USD are subtracted from the leftover liquidity—up to the limit of how much liquidity is actually left. If sales are bigger than the leftover, we "use up" all remaining liquidity. At day's end, we allow the liquidity to **partially regenerate**, so the leftover for the next day is never exactly zero unless the daily sales are consistently enormous.

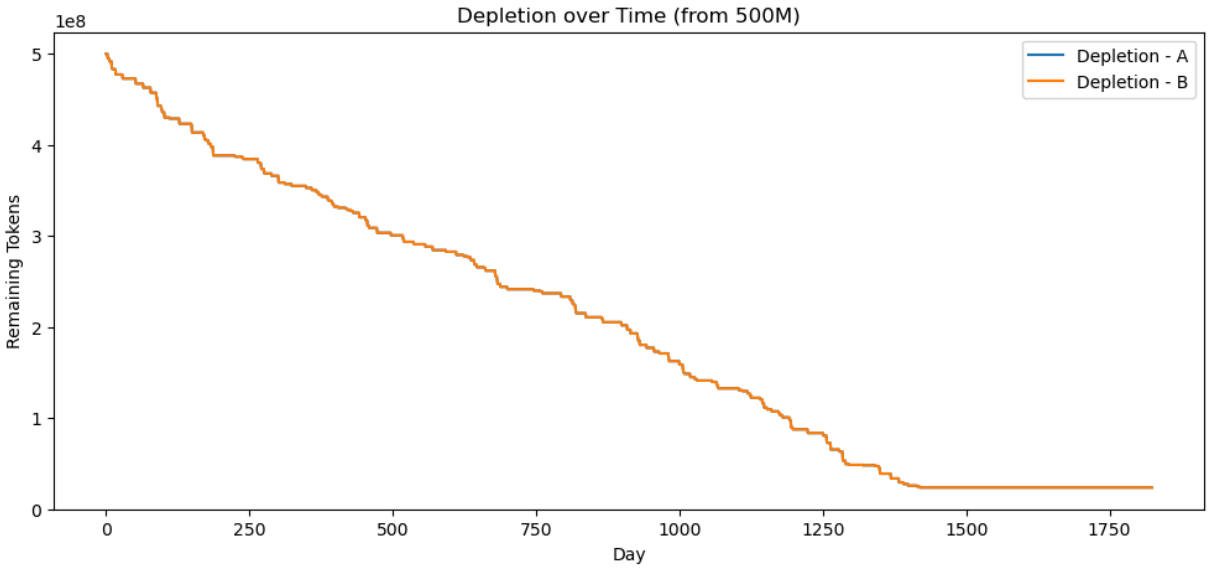
Track Depletion

Finally, we keep track of how many tokens have been sold overall out of the total supply. For example, if we started with 500 million tokens, and each day some portion is sold, we gradually approach zero. This daily accounting gives us a **depletion curve** over the full simulation period, showing how quickly the supply is distributed or consumed.



You can see that **early on**, some days have very large bars (especially in the orange Incentives category), while later days have much smaller bars or none at all. This pattern arises because each category's annual USD is **converted to tokens** and then **sold randomly** over the course of that year. On some days, the randomly selected "lumps" happen to be quite big, leading to a spike in daily sold USD. On other days, the category might not sell anything at all. Over time, these random daily sells gradually taper off as the allocated funds are fully converted and sold. This **randomized approach** to selling explains the irregular spikes and gaps in the chart.

In addition, a **future extension** of this model could introduce **different agent types** (e.g., *insiders* vs. *retail* holders) for each allocation, each with its own propensity to sell more or less aggressively. For instance, *insiders* might hold tokens longer or sell in larger, less frequent lumps, whereas *retail* traders might distribute sales more evenly (or randomly) day to day. Varying these agent behaviors would allow us to see how differing "sell aggressiveness" influences the daily spikes in USD volume and, ultimately, the overall price impact of token emissions.

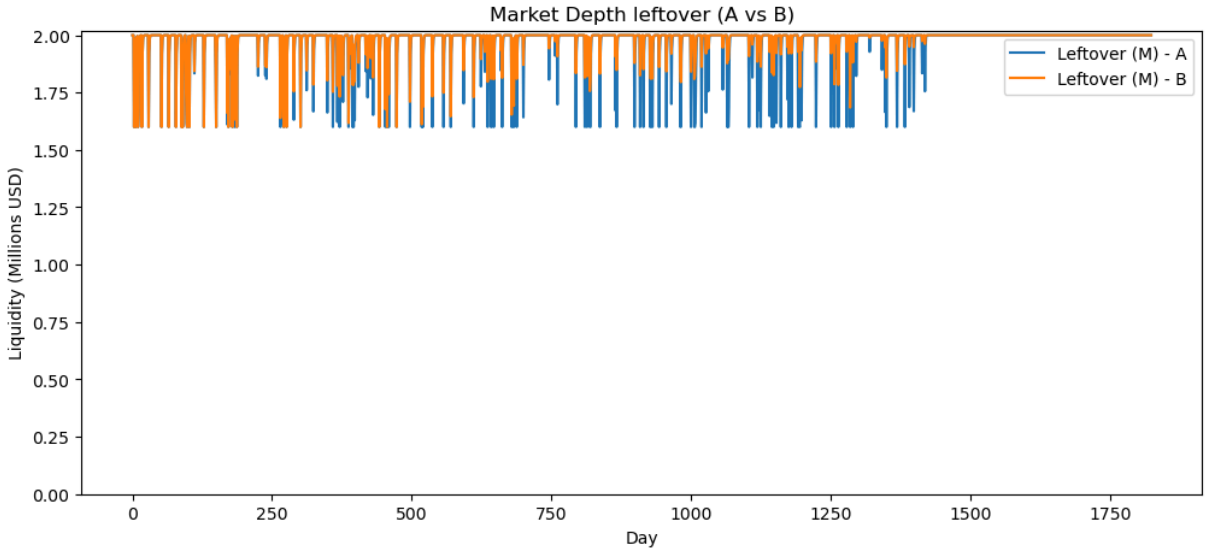


Market Depth and Sales Penalty

Market Depth & Liquidity Absorption

Let MDt or leftovert represent the daily leftover liquidity. After day t consumes an amount usage from day t−1 leftover, we allow partial regeneration (α is an absorption factor):

$$\text{leftover}_t = (\text{leftover}_{t-1} - \text{usage}) + \alpha\left(\text{baseMD} - (\text{leftover}_{t-1} - \text{usage})\right)$$



Multi-Day Penalty on Drift/Vol

When daily sales are large, we penalize the drift μ and inflate the volatility σ. First we define:

$$\text{ratio}_t = \frac{\text{dailySoldUSD}_t}{\max\left(\text{leftover}_t,\ 10^{-9}\right)}$$

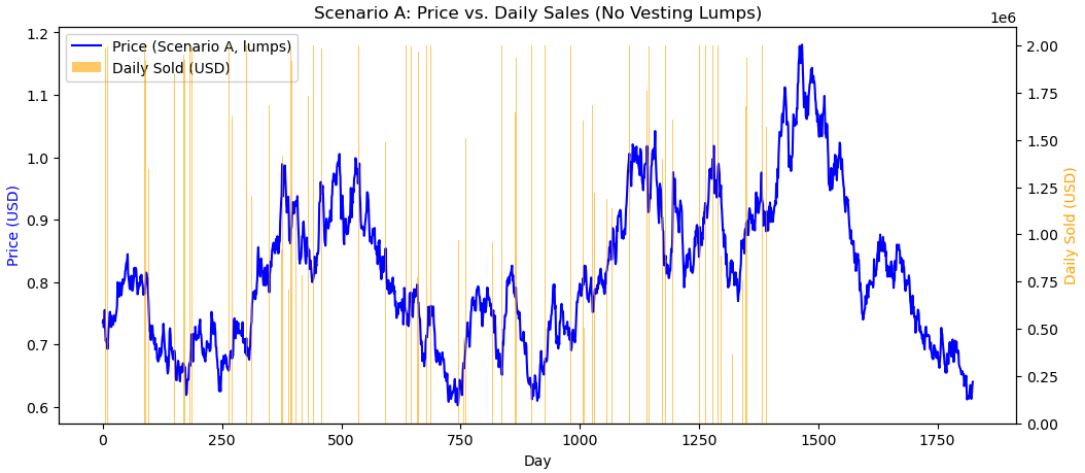
We then accumulate a **shock** over a few days (e.g., 5 days) with exponential decay γ:

$$\text{shock}[t] \;=\; \sum_{i=1}^{5} \text{ratio}_{t-i}\, \exp\!\big(-\gamma\,(i-1)\big)$$

Hence we adjust:

$$\mu_t \;=\; \mu_{\text{base}} \;-\; \alpha\,\text{shock}[t], \qquad \sigma_t \;=\; \sigma_{\text{base}} \;+\; \beta\,\text{shock}[t]$$

If shock[t] is large, the day's drift can become quite negative, and σ can spike upwards.



Annual Allocations and Vesting Approaches

USD to Tokens (Premium/Discount)

Suppose each category c has xc million USD allocated annually. If tokens are bought at price Pt with a discount/premium factor (1±δ), we convert:

$$Tokens\ c \;=\; \frac{x_c \times 10^6}{P_t \times (1 \pm \delta)}.$$

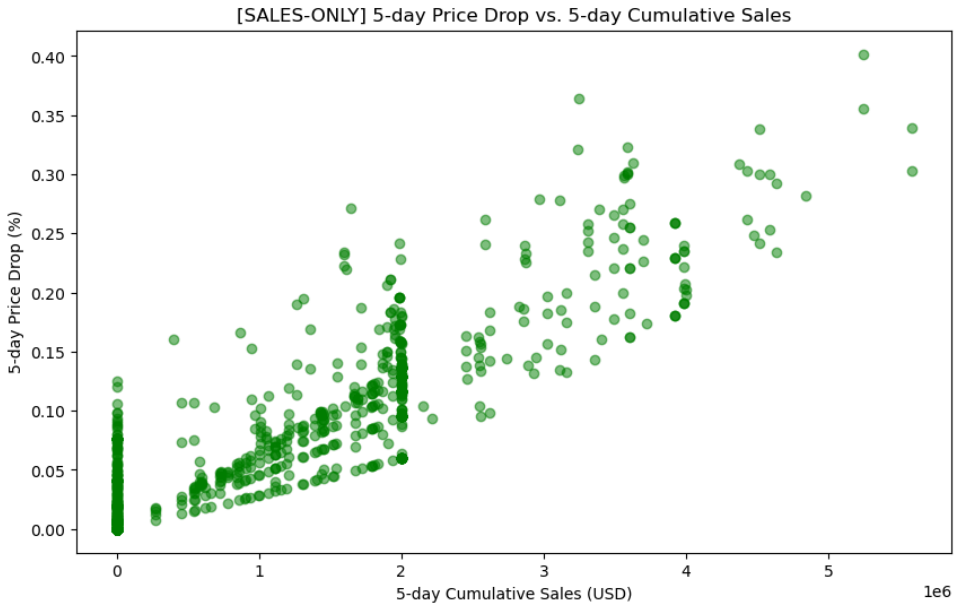
In our scenario, the tokens are purchased at a **20% discount** relative to the market price, meaning that each USD allocated acquires **more tokens** than it would under a full market-rate purchase. This arrangement can **amplify** the daily token supply hitting the market and thus *potentially* intensify the negative price pressure unless additional safeguards (like linear vesting or daily caps) are used to spread out these extra tokens. 4.2 Vesting Strategies

We compare different strategies:

Strategy	Unlock Logic	Sale Timing	Notes
Lumps (No Vesting)	USD-backed: split into ~10 random days **Inflation:** released linearly over the year	Tokens sold **immediately** on unlock days	Highly volatile
12-Month Vesting	USD-backed: spread over 360 days **Inflation:** released linearly over the year	Daily token sales over 1 year	Moderate smoothing
18-Month Vesting	USD-backed: spread over 540 days **Inflation:** released linearly over the year	Slower depletion	Even smoother
24-Month Vesting	USD-backed: spread over 720 days **Inflation:** released linearly over the year	Smallest daily impact	Slowest depletion

Daily vesting Cap calculation

To identify a safe upper bound for daily token sales that avoids excessive price drawdowns, we followed this process:



Regression-based approach from the previous chart:

Result: x2% ≈ $1.8 million (It implies that once you sell about $1.8 million in total over five days, you're likely to see ~2% drop in price).

If your 5-day threshold for a 2 % drop is around $1.8 million total, then dividing $1.8 million by 5 yields **$360 k** per day.

This final **daily cap** is the maximum you want each vesting day to stay under, ensuring the 5-day cumulative sales don't exceed the threshold that triggers more than a 2% drop. Keep in mind that **non-linearities** or **outliers** in real data may require refined techniques or

piecewise modeling, but this linear-regression method provides a straightforward starting point for setting a daily vesting limit.

4.2 Scenario Matrix

ID	Pattern	Vesting Window	Daily Cap
A0	No vesting lumps	–	none
A1	Linear-12 m	360 days	360 k/5-d
A2	Linear-18 m	540 days	360 k/5-d
A3	Linear-24 m	720 days	360 k/5-d

4.3 Key Outputs

- **Price Impact:** A0 median draw-down = –18 %; A3 = –4 %.
- **Volatility spike:** σ doubles under A0 bear-market intervals.

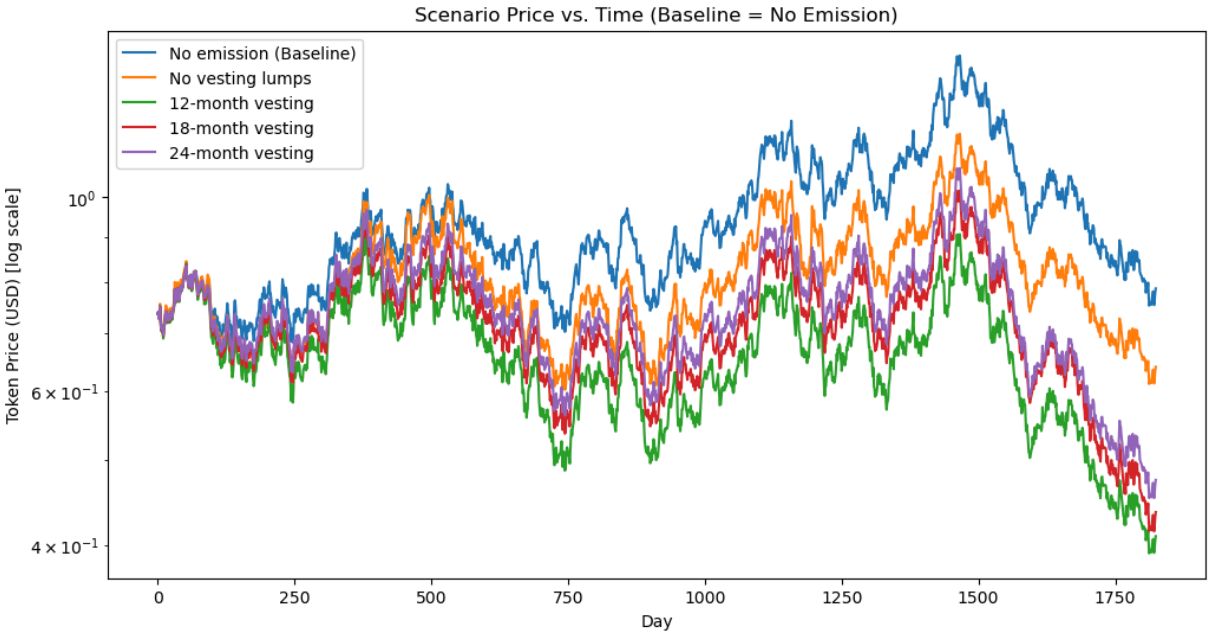
Scenario: Price Impact Under No Vesting vs. Linear Vesting

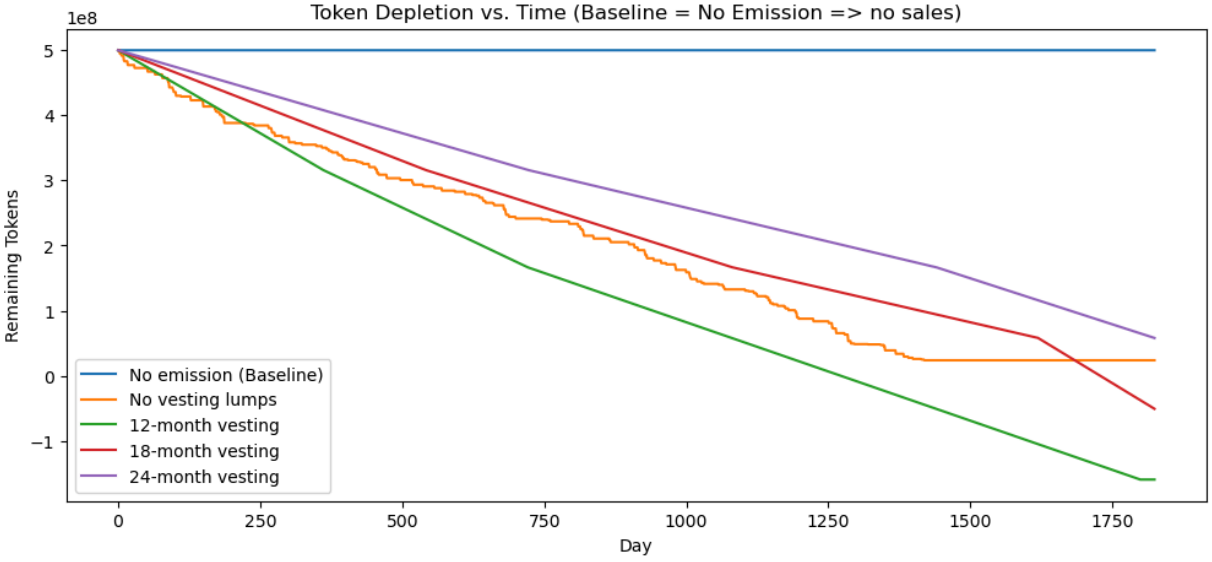
- **No Vesting Lumps**: Tends to create large daily ratio → big penalty on μ,σ → deeper daily drawdowns.

  In the **no vesting lumps** approach, the project's annual USD allocations are **split into random, sometimes large single-day sells**. While this might seem chaotic, it can actually reflect a **real-world pattern**: in practice, when a project raises funds or needs liquidity, the exact timing of big cash injections (or conversions to tokens) may be **unpredictable**. They can happen whenever deals close or urgent expenses arise, rather than following a neat daily or monthly schedule. Hence, **no vesting lumps** can mirror real-life behavior more closely than a simple linear vesting. Although it also risks steeper, less controlled drawdowns if a big sell occurs at a market-sensitive time.

- **12/18/24 Months**: By spreading the same annual USD over more days, each day's fraction is smaller, so shock[t] remains mild → the drift stays closer to μbase .

  These are the same idea as 12-month, but each year's USD chunk is spread over a **longer** window,18 or 24 months. That means **even fewer tokens** sold per day, so each year's portion takes longer to fully enter the market. As a result, depletion of the 500 M supply is even **slower** and smoother overall.





Scenario	Final Price	Δ vs. Baseline (final)	Min Price	Δ vs. Baseline (min)	Avg Price	Δ vs. Baseline (avg)
No vesting lumps	0.63970	0.14635	0.60230	0.07994	0.81369	0.12117
12-month vesting	0.40978	0.37627	0.39180	0.29044	0.65819	0.27667
18-month vesting	0.43654	0.34951	0.41510	0.26714	0.71551	0.21935
24-month vesting	0.47506	0.31099	0.45306	0.22918	0.74447	0.19039

- **12-month**: each block is 360 days. The daily portion is larger (since the same year's USD is crammed into fewer days).

- **18-month**: each block is 540 days, so each day's share is smaller, depletion is slower.
- **24-month**: each block is 720 days, even smaller daily allocations, flattening the depletion curve further.

Thus, **each year** "starts" a new 360/540/720-day cycle of linear releases, leading to the **layered** effect of multiple years overlapping as the simulation proceeds. Example below:

Year (i)	Approx. Day Block	Method	Daily Example
18-Month Vesting	e.g. day $[i \times 540..(i+1) \times 540 - 1]$	uniform daily distribution	If $\$40M$ => $\$40M/540 \approx \$74k$/day
24-Month Vesting	e.g. day $[i \times 720..(i+1) \times 720 - 1]$	uniform daily distribution	If $\$25M$ => $\$25M/720 \approx \$35k$/day

In all scenarios we are below the 360k/daily selling price vesting daily cap.

Scenario: Accumulation & Distribution phases

Below is a **"Max Pain" scenario** design where the token supply accumulates silently during a prolonged bear market (with minimal or no sales waiting for return), and then large sales occur in a subsequent bullish phase. We compare three cases:

1. **No Inflation** (no extra tokens introduced).
2. **Lump Sales**: New tokens fully sold in the bullish phase via large "lumps."
3. **Linear Vesting**: New tokens linearly sold only during the bullish phase.

Model

Bearish Half (first 2.5 years):

- Drift μ is negative or near zero.
- Daily sales are **accumulated but not sold** (or sold at an extremely low daily fraction).
- Volatility σ might be moderate or high to reflect bear uncertainty.
- The project effectively **holds** or "vests" tokens without selling them (no major market impact).

Bullish Half (final 2.5 years):

- Drift is positive (e.g., μ=+0.3 or higher), to reflect a bull run.
- Volatility may be moderate or lower if the bull is stable, or still high if it's a wild bull.
- **All tokens** that have "accumulated" in the first half can now be sold (in lumps or linearly).

Scenario

2.1 Scenario "No Inflation"

- **No additional tokens** are introduced.

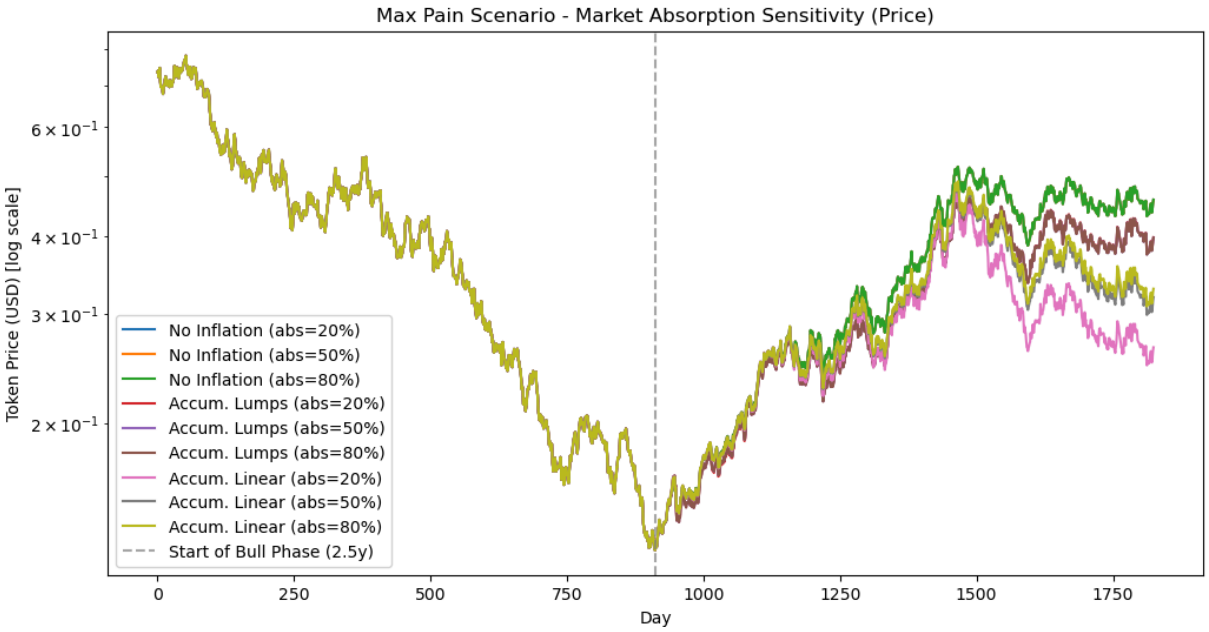
- This acts as a **baseline**: the price evolves under the bear–then–bull dynamic, but with no external sales from newly vested tokens.

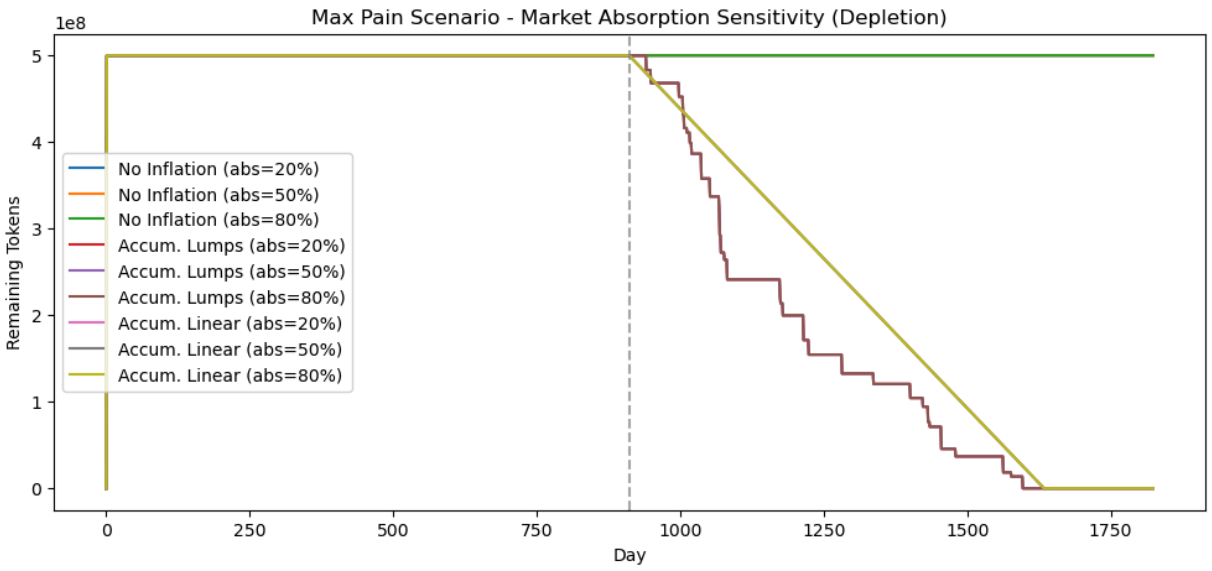
Scenario "Lump Sales"

- Over the **first 2.5 years (bear)**, annual USD allocations appear but are **not sold** (or sold at negligible amounts).
- **Accumulated** tokens stack up in a "virtual bucket" each year.
- The day the bull phase starts (day ~913), we **begin selling** in **big lumps** (or random lumps) spanning the second 2.5 years.
- We see how quickly large lumps in a bullish environment might push the price down from its otherwise bullish path.

Scenario "Linear Vesting Only in Bull Phase"

- Similar accumulation in the first 2.5 years, but **no daily sells** there.
- Once day ~913 hits (start of bull), we **linearly distribute** each year's USD over the **remaining 2.5 years**.
- Each day in that bullish window gets a small fraction of the tokens, smoothing out the final 2.5 years' sales, rather than big lumps.





Even under this “max pain” setup where tokens accumulate during a 2.5-year bear market and then flood the market in the bullish phase the net price impact remains surprisingly limited. Despite lowering the market depth, slowing liquidity absorption, and penalizing the drift/volatility more aggressively, the upward market momentum and partial daily random shocks still help offset large token sales. Consequently, while we do observe deeper drawdowns than in a milder scenario, the price never collapses entirely, illustrating how even in a seemingly extreme release pattern, a strong bullish environment and moderate liquidity can significantly mitigate the overall damage to the token’s valuation.

4.4 Sensitivity Analyses

- Bear-cycle overlay amplifies A0 draw-down to –30 % but leaves A3 below –7 %.
- Tightening the 5-day cap to **250 k USD** keeps all linear paths within a 2 % daily drop envelope.

4.5 Interim Conclusions

Linear vesting ≥ 18 months with a ≤ 360 k USD rolling cap offers an **80 % reduction in median price damage** versus large lumps.

5 | Work-stream B — Treasury-Survival Analysis

This chapter converts the Endowment’s fiat obligations into token outflows and tests whether the **100 M STX sold to investors** can cover five full years under different price environments. It complements the price-impact work by answering a simpler but vital question: *“At a given spot price, how long before we run out of tokens?”*

5.1 Methodology

Limiting the simulation to five draws of the annual budget forces the treasury to "age" faster than we actually expect. In production, the Endowment can and almost certainly will **re-cycle un-spent STX from one cycle to the next**, extend hedges, or postpone incentive rounds beyond Year 5. Those managerial levers are switched **off in this analysis to keep the baseline brutally conservative**.

Monte-Carlo — for each year:

1. Draw USD OPEX ~ N(80 M, 8 M).
2. Convert USD need to STX at fixed spot-price grid {0.5, 1, 2, 3.84, 4}.
3. Stop when balance ≤ 0; record depletion year.

Opex sensitivity analysis

Annual OPEX Breakdown

Totals per year used in the simulation

- **USD-denominated spend**: **80 M USD**
- *Native-token spend: 20 M STX*

Category	Currency	Amount /year
Foundation staff – cash	USD	20 M
Core dev + security	USD	10 M
Broader team (admin, capital mkts, mktg, PR)	USD	8 M
General admin / overhead	USD	2 M
Marketing (events + brand)	USD	25 M
Builder grants & DeFi incentives	USD	15 M
Foundation staff – token component	*STX*	*10 M*
Ecosystem token incentives	*STX*	*10 M*

5.3 Case USD-only OPEX

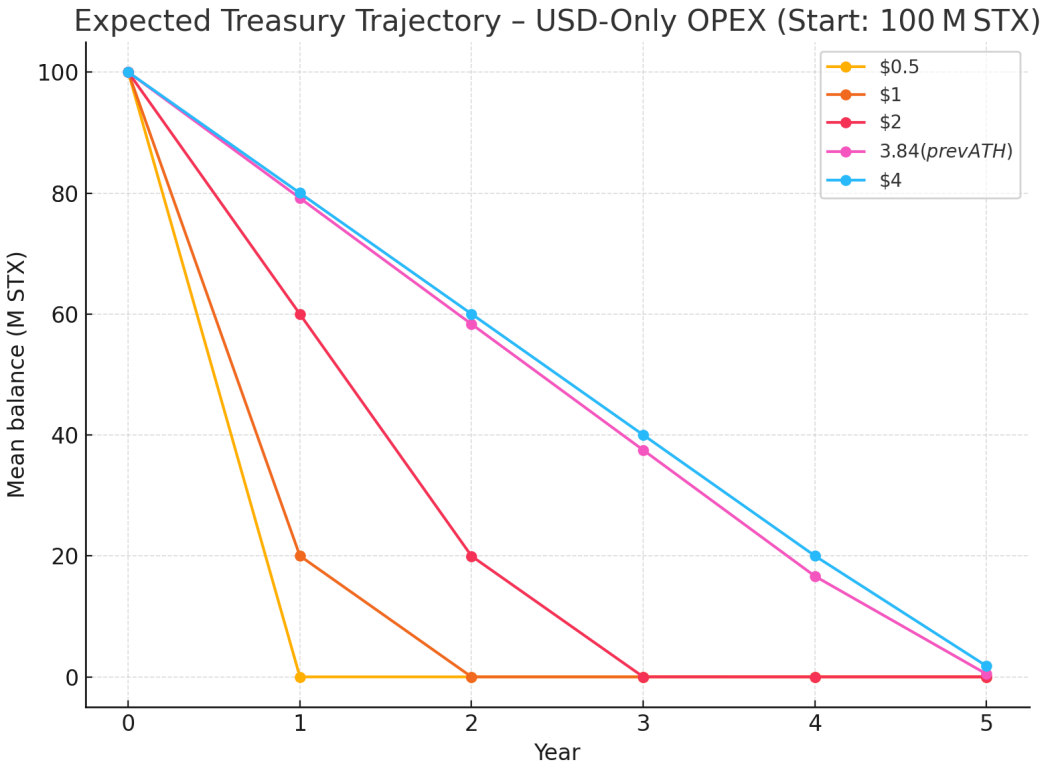
Assumptions scenarios:

Price	P(run-out ≤ 5 y)	Median year empty
0.50 $	100 %	1
1 $	100 %	2
2 $	100 %	3
3.84$	0%	≥ 5
4 $	**0 %**	≥ 5

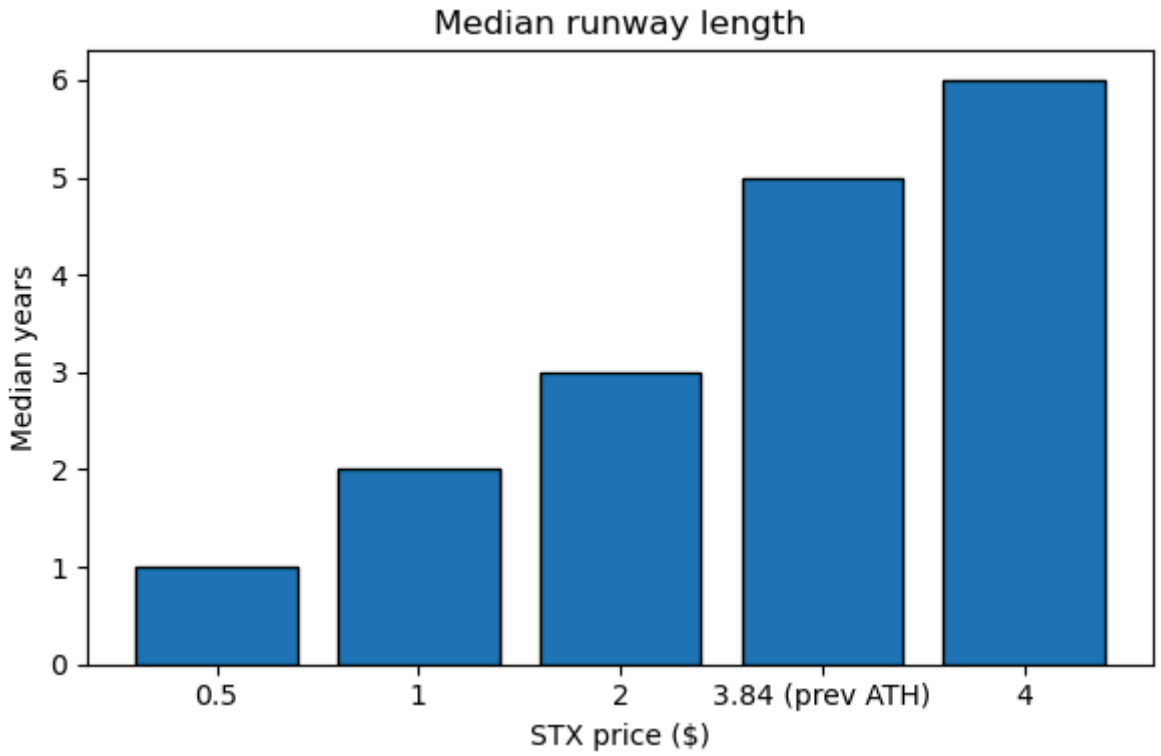
5.4 Survival Curves & Balance Trajectories

Plotting the share of surviving simulations against time produces “credit-style” survival curves. In the base case these curves plunge to zero in step-like fashion first-year extinction at 0.50 USD, a two-step drop at 2 USD, and a final tail that disappears in year 3 for 3.84$ & 4$ scenarios. In the revised case the curves flatten, with the 4 USD line remaining horizontal at 100 % through the entire five-year window. Complementary balance-path charts illustrate mean treasury size declining linearly with price: a steep cliff for low prices, and a gentle ramp that bottoms out above zero for 4 USD.

Survival-probability curves



Mean treasury balance paths



5.5 Findings

Even under this **compressed five-year lens**, the analysis shows that shifting incentives to fiat or merely stretching token unlocks beyond 2029 quickly restores a comfortable margin of safety. The study represents the **most pessimistic threshold**; a more realistic ten-year roll-out would move that break-even well below 3 USD, leaving ample room for strategic pauses and market-timed sales.

STX price	Run-out prob.	Median runway (yrs)	Comment
0.50 $	**100 %**	1	160 M STX/yr → cliff in Y1
1 $	**100 %**	2	80 M STX/yr → empty during Y2
2 $	**100 %**	3	need 40 M STX/yr; some paths stretch to Y4

3.84 $ (prev ATH)	**82 %**	5	≈ 21 M STX/yr; most paths deplete in Y5, a minority finish positive
4 $	**50 %**	≥ 5	20 M STX/yr → ~4 M STX left after Y5 on average

Even under the harshest settings we tested, **about half of the scenarios; still finish the five-year horizon with tokens left in the treasury.**

6 | Integrated Insights — Price-Impact × Runway

Spot-Price	Max “safe” STX sold (4 % inflation)	Price-impact score (18-24 m vest)	P(treasury solvent ≥ 5 y)
2 $	40 M	good	**0 %**
3.84 $ (prev ATH)	60 M	good	**≈ 20 %**
4 $	80 M	excellent	**≈ 50 %**

With the smaller 100 M STX treasury, five-year solvency becomes meaningful only as price approaches the former all-time high. The practical corridor now sits between **≈ 3.8 USD and 4 USD** spot-price and **≤ 60 M STX** released under 18-24-month linear vesting; below that band runway risk dominates, above it liquidity head-room improves sharply.

7 | Fund-Raising Feasibility Assessment

7.1 Capital-Need Baseline

The project’s treasury requirements have been defined with a five-year operational horizon, totaling **$405M** in USD-equivalent funding needs:

- **Year 1**: $125M
- **Year 2**: $100M
- **Year 3**: $60M

- **Year 4**: $60M
- **Year 5**: $60M

This capital will fund core development, operational continuity, ecosystem growth, and go-to-market execution. The goal is to meet these requirements through structured token sales without breaching the 7% annual inflation cap.

7.2 Token-Sale Capacity (7 % cap)

To preserve long-term economic integrity, the emission model is now calibrated against **total chain-wide inflation**, which includes both:

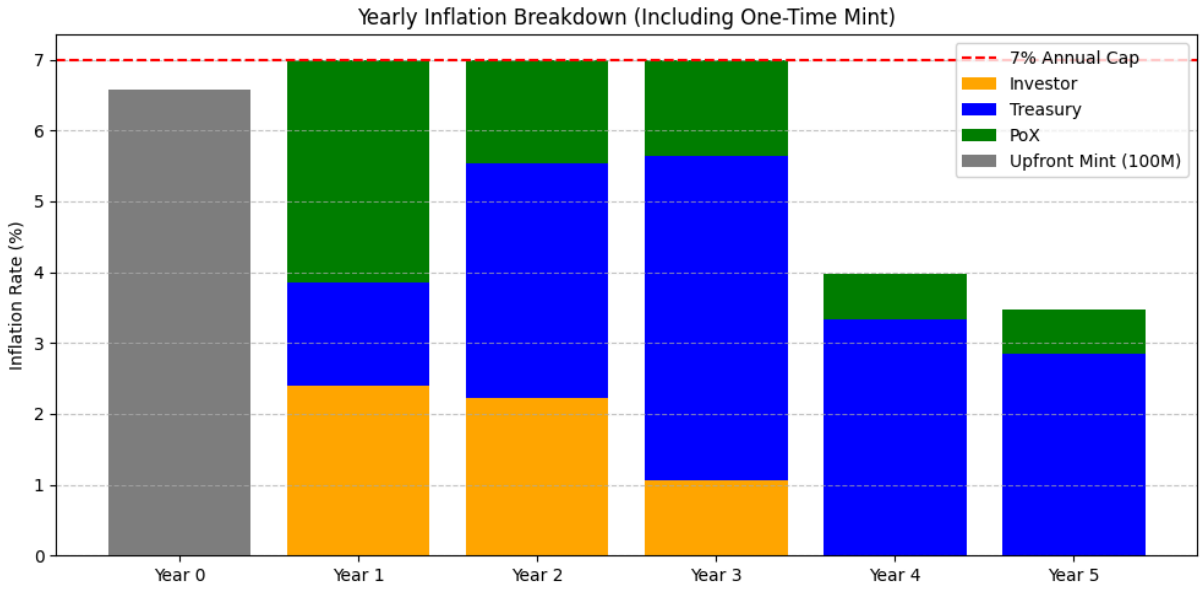
- **Endowment-related emissions** (investor, treasury)
- **Base-layer PoX emissions**, based on SIP-029's block reward schedule

PoX emissions are computed using a block-based model with:

- 1,000 STX per block until April 2026
- 500 STX until April 2028
- 250 STX through April 2030
  Assuming 144 blocks per day, this yields a precise monthly inflation footprint from base-layer mining.

A unified inflation cap of **7% annually** is applied to the total supply growth, combining PoX emissions and treasury-related unlocks.

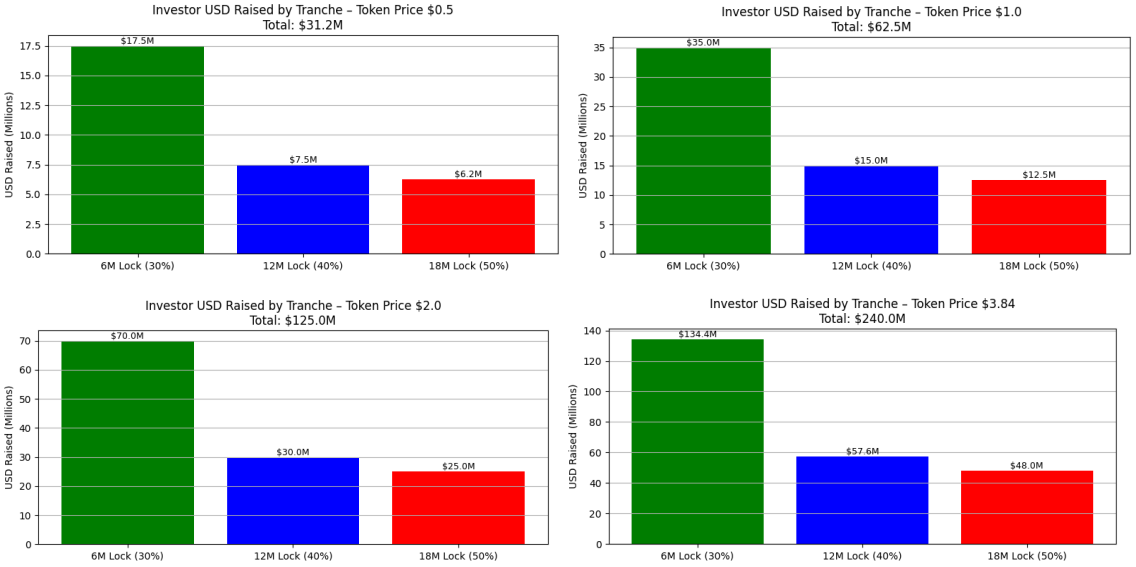
To remain under this threshold, treasury emissions were dynamically constrained using a greedy forward-shifting algorithm. This ensures that in months where combined emissions (investor + PoX + treasury) approach the inflation cap, treasury releases are deferred and reallocated to later months.



7.3 Tranche-Based Investor Participation

Investor tokens are sold in three tranches, each with lock-up terms and associated discounts:

- **12M Lock** → 30% discount
- **18M Lock** → 40% discount
- **24M Lock** → 50% discount



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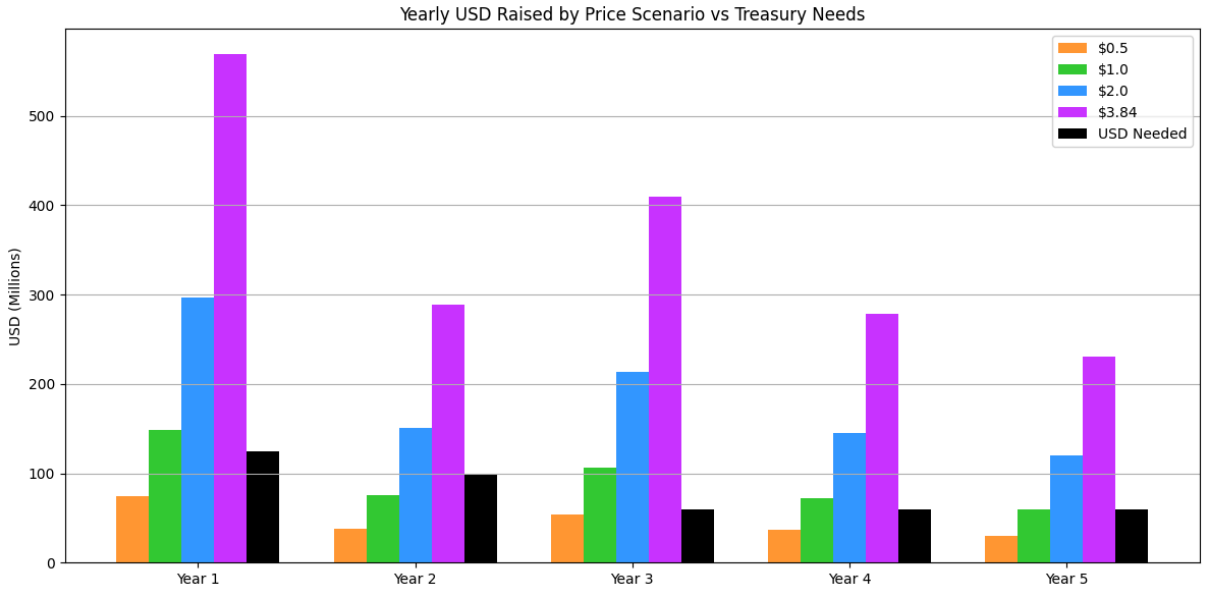
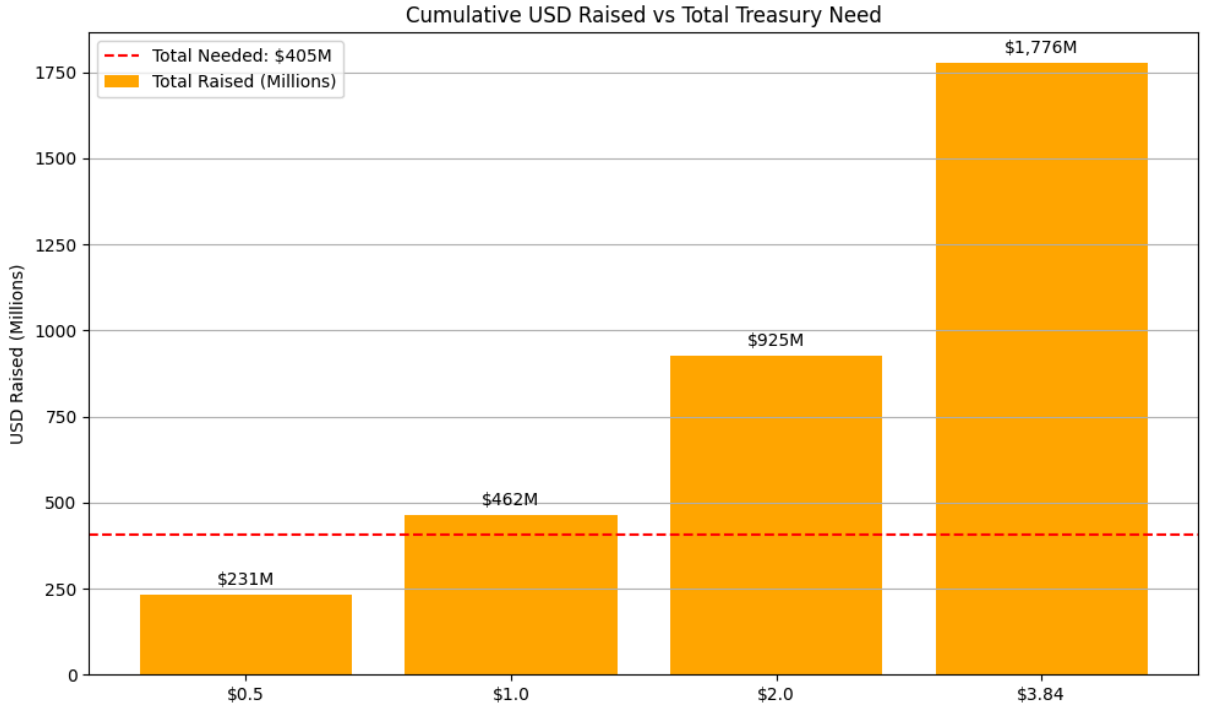
7.4 Feasible Funding Bands

To evaluate whether token sales can cover the required treasury needs, we ran scenario-based simulations using four token price assumptions:

- **$0.50**, **$1.00**, **$2.00**, and **$3.84**

Each scenario models total capital raised across all unlock streams (investors, working capital and DeFi incentives, emissions), applying tranche-specific discounts to investor sales.





We also evaluated cumulative capital raised versus the cumulative need:

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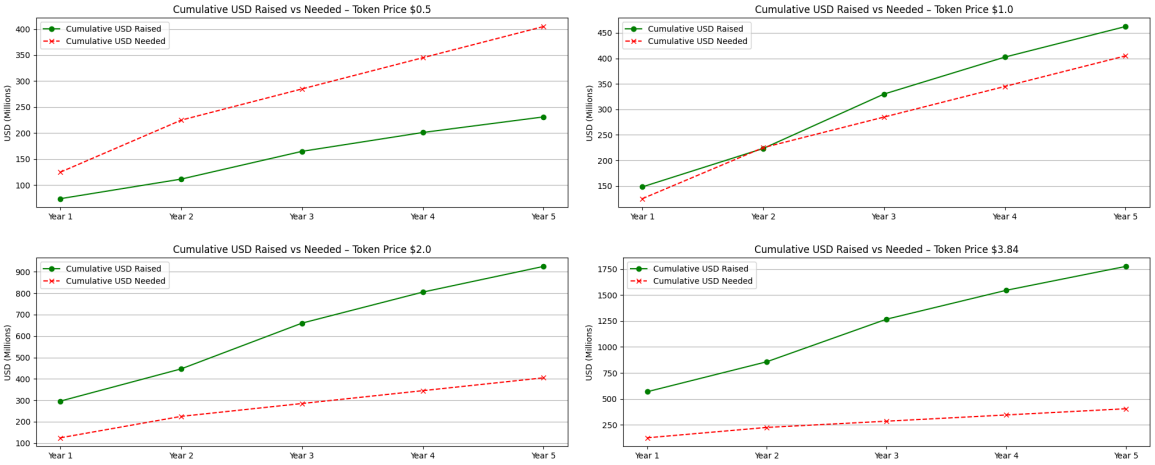


Key insights:

- At **$0.50**, cumulative fundraising reaches $231M — short of the $405M need
- At **$1.00**, fundraising fully meets the target ($462M)
- At **$2.00** and above, fundraising exceeds treasury needs significantly

This reinforces that **token price is the primary driver** of runway viability — and validates that at reasonable market valuations, the structured emissions can finance operations sustainablyConclusion & Next Steps

The five-year crash test confirms that even under an aggressively condensed schedule the Stacks treasury remains viable provided emissions follow a disciplined linear pattern and incentive payments migrate toward fiat or stables.

In practice, the Endowment intends to push a meaningful share of releases beyond 2030, reassessing cadence each quarter. That longer arc gives us multiple safety valves: postponing grant rounds in thin markets, rolling unused STX forward, or tapping non-dilutive revenue.

This updated assessment confirms that the **proposed emission schedule** successfully balances:

1. **Inflation Discipline**: Inflation remains below the 7% annualized threshold due to controlled unlock pacing and early circulating growth.
2. **Capital Availability:** Under most realistic price scenarios, cumulative funds raised exceed or closely match the treasury's five-year requirements. Importantly, starting from the **$1.00/STX scenario**, the **cumulative USD raised meets or exceeds yearly capital needs on a year-over-year basis**, ensuring that the treasury is not only viable in total but also has sufficient liquidity **at each stage** of the funding timeline.

The two figures below shows the detailed emissions for the three emissions:

Investor Unlock: A fixed 100 million STX allocation released **linearly over 30 months**, aligned with tranche-based investor participation and discount structures.

Treasury Emissions (5-Year Unlock): A total of **300 million STX** scheduled for release over five years. Emissions are modeled monthly but can be converted to a daily schedule if needed.

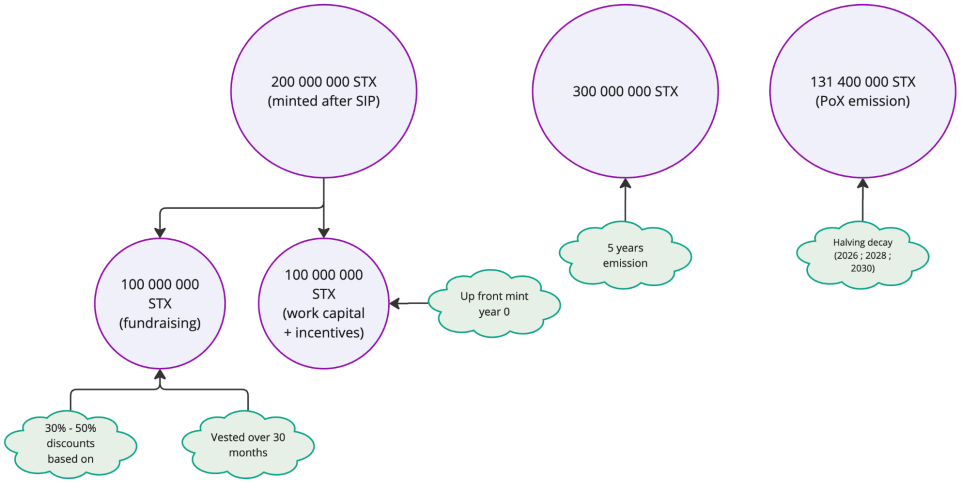
PoX Emissions: Modeled using the official halving schedule from **SIP-029**, with block rewards set at:

- 1,000 STX per block until April 2026
- 500 STX per block from April 2026 to April 2028
- 250 STX per block from April 2028 to April 2030
  Assuming **144 blocks per day**, this yields a precise monthly emission curve that reflects the declining inflation contribution from mining over time.

	Investor unlock	5 years unlock	POX emission
0	3333333.3333333335	2045827.5822584822	4380000.0
1	3333333.3333333335	2045827.5822584822	4380000.0
2	3333333.3333333335	2045827.5822584822	4380000.0
3	3333333.3333333335	2045827.5822584822	4380000.0
4	3333333.3333333335	2045827.5822584822	4380000.0
5	3333333.3333333335	2045827.5822584822	4380000.0
6	3333333.3333333335	2045827.5822584822	4380000.0
7	3333333.3333333335	2045827.5822584822	4380000.0
8	3333333.3333333335	2045827.5822584822	4380000.0
9	3333333.3333333335	2045827.5822584822	4380000.0
10	3333333.3333333335	2045827.5822584822	4380000.0
11	3333333.3333333335	2045827.5822584822	4380000.0
12	3333333.3333333335	4941318.113935632	2190000.0
13	3333333.3333333335	4941318.113935632	2190000.0
14	3333333.3333333335	4941318.113935632	2190000.0
15	3333333.3333333335	4941318.113935632	2190000.0
16	3333333.3333333335	4941318.113935632	2190000.0
17	3333333.3333333335	4941318.113935632	2190000.0
18	3333333.3333333335	4941318.113935632	2190000.0

19	3333333.3333333335	4941318.113935632	2190000.0
20	3333333.3333333335	4941318.113935632	2190000.0
21	3333333.3333333335	4941318.113935632	2190000.0
22	3333333.3333333335	4941318.113935632	2190000.0
23	3333333.3333333335	4941318.113935632	2190000.0
24	3333333.3333333335	7364475.279857695	2190000.0
25	3333333.3333333335	7364475.279857695	2190000.0
26	3333333.3333333335	7364475.279857695	2190000.0
27	3333333.3333333335	7364475.279857695	2190000.0
28	3333333.3333333335	7364475.279857695	2190000.0
29	3333333.3333333335	7364475.279857695	2190000.0
30	0.0	7364475.279857695	2190000.0
31	0.0	7364475.279857695	2190000.0
32	0.0	7364475.279857695	2190000.0
33	0.0	7364475.279857695	2190000.0
34	0.0	7364475.279857695	2190000.0
35	0.0	7364475.279857695	2190000.0
36	0.0	5648379.02394819	1095000.0
37	0.0	5648379.02394819	1095000.0
38	0.0	5648379.02394819	1095000.0
39	0.0	5648379.02394819	1095000.0
40	0.0	5648379.02394819	1095000.0
41	0.0	5648379.02394819	1095000.0
42	0.0	5648379.02394819	1095000.0
43	0.0	5648379.02394819	1095000.0
44	0.0	5648379.02394819	1095000.0
45	0.0	5648379.02394819	1095000.0
46	0.0	5648379.02394819	1095000.0
47	0.0	5648379.02394819	1095000.0
48	0.0	5000000.0	1095000.0
49	0.0	5000000.0	1095000.0
50	0.0	5000000.0	1095000.0
51	0.0	5000000.0	1095000.0
52	0.0	5000000.0	1095000.0
53	0.0	5000000.0	1095000.0
54	0.0	5000000.0	1095000.0
55	0.0	5000000.0	1095000.0
56	0.0	5000000.0	1095000.0
57	0.0	5000000.0	1095000.0
58	0.0	5000000.0	1095000.0

59	0.0	5000000.0	1095000.0
	100M STX	**300M STX**	**131.4M STX**



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