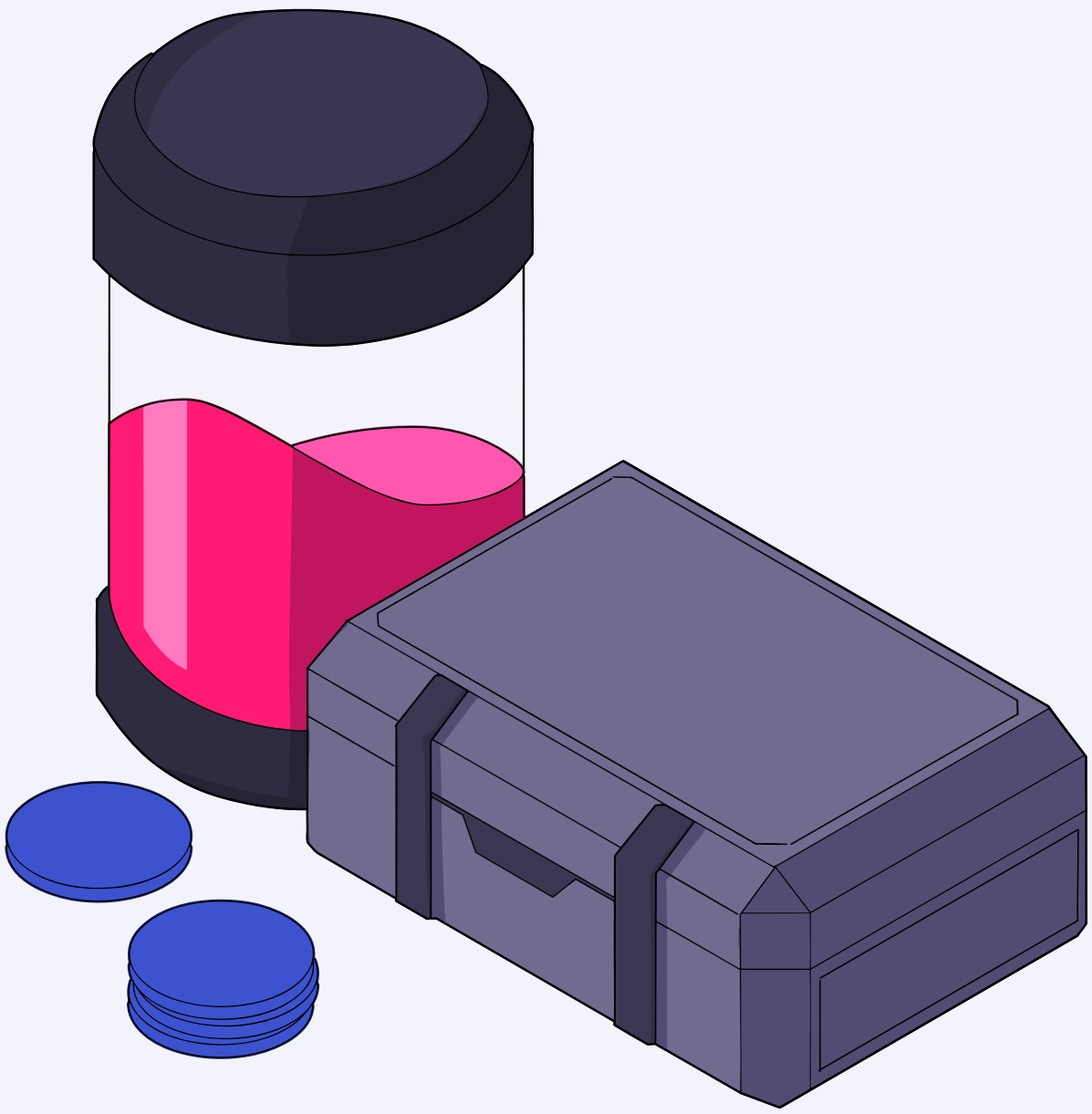
Minswap

Minswap DAO Emissions and Treasury Report



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Minswap DAO Emissions and Treasury Report

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Abstract

In this report, the Minswap Tokenomics Working Group analyzed the MIN Emissions and DAO Treasury management. The group found that MIN emissions are too high, even at the low end of the dynamic range. The report recommends that the community vote to decrease the lower bound of emissions, and that a Working Group be created to manage dynamic emissions.

[1] Active members of the Minswap community. They have no affiliations with Minswap Labs.
[2] Working group leader
[3] Member of Minswap Labs, whose role was primarily providing data, information, and suggested ideas to be included in this report subject to the discretion of the other authors.

1 Introduction

The purpose of this report is to provide the background information and analysis of the Minswap DAO to guide decision making on MIN Emission and DAO Treasury Asset management.

Minswap is a Decentralized exchange (DEX) launched on the Cardano blockchain mainnet on March 8th 2022. Since the launch with the Liquidity Bootstrapping Event (LBE), MIN Tokens have been distributed through Yield Farming (YF) in 2 Phases:

- Bootstrapping Phase (Phase 1): from March 16th to August 13th, 5% of total MIN tokens supply was distributed.
- Minimax Phase (Phase 2, current): from August 13th until now, this phase transitioned reward incentives to a Dynamic Emissions structure that permits emissions to vary from a minimum of 666,666 MIN per day to a maximum of 1,999,999 MIN per day.

Emissions have remained at the lower bound of the range (around 670,609.62 MIN daily emission) for most of Phase 2. With several months of data since Phase 2 began, a retrospective analysis of how MIN Farming incentives have been distributed is overdue. It is important to highlight that the aim of MIN Emissions is to drive value to the protocol, and an analysis of how effective dynamic missions have helped achieve that goal is warranted.

When it comes to the **DAO Treasury**, the LBE was not only how the initial MIN/ADA Liquidity Pool was launched, but also the first time the concept of “Protocol Owned Liquidity” (POL) was implemented on Cardano. Basically, POL means the Assets that the Minswap DAO Treasury owns and manages. There have been 2 additional sources for POL:

- Launchbowl Events: for **INDY/ADA** and **MCOS/ADA LP** Tokens.
- Fee Switch: the Fee Switch refers to redirecting 0.05% of the 0.3% Liquidity Provider Fee that swappers pay to increase the DAO Treasury's POL and to increase the **MIN/ADA** Liquidity.

In this Report, a Minswap Working Group was set up with two main goals:

- Reviewing and analyzing the effectiveness of MIN emissions management according to the terms of reference anticipated in the $MINomics Research Part 2: Introducing Dynamic Emissions Schedule article.

- Showing the evolution of the DAO Treasury assets over time.

2 Methodology

The main purpose of this document is to determine how MIN emissions impact the value of the Minswap protocol. The analysis operates under the assumption that MIN emissions have the goal of increasing protocol value. Protocol value may mean many things, including tangible and intangible value/benefits. **Tangible benefits** would be items such as: DAO Treasury Revenue, Volume, Total Value Locked (TVL), Percentage of Overall Cardano DEX Volume/TVL, low slippage and fees for traders, etc. **Intangible benefits** would include: community growth and involvement, protocol reputation (inside and outside of Cardano), contribution to overall Cardano ecosystem growth, etc. In this context, MIN emissions are considered a “cost” the Minswap DAO pays to increase the value of the DEX. Thus, the analysis presented here tries to evaluate how efficiently the cost of emissions is actually attracting value. It should be noted that the analysis here is likely insufficient to fully capture all value that the emissions might attract.

The majority of the analysis uses data from **8/13/22 until 3/31/23**. This was chosen since it is when the Minimax Phase started up through the end of Q1 2023. This is important to note since it does not capture recent Minswap data that includes the uncharacteristically large volumes from “memecoins”. In some cases, historical data predates 8/13/22, including data pulled from DefiLlama for Cardano DEX Ecosystem comparisons.

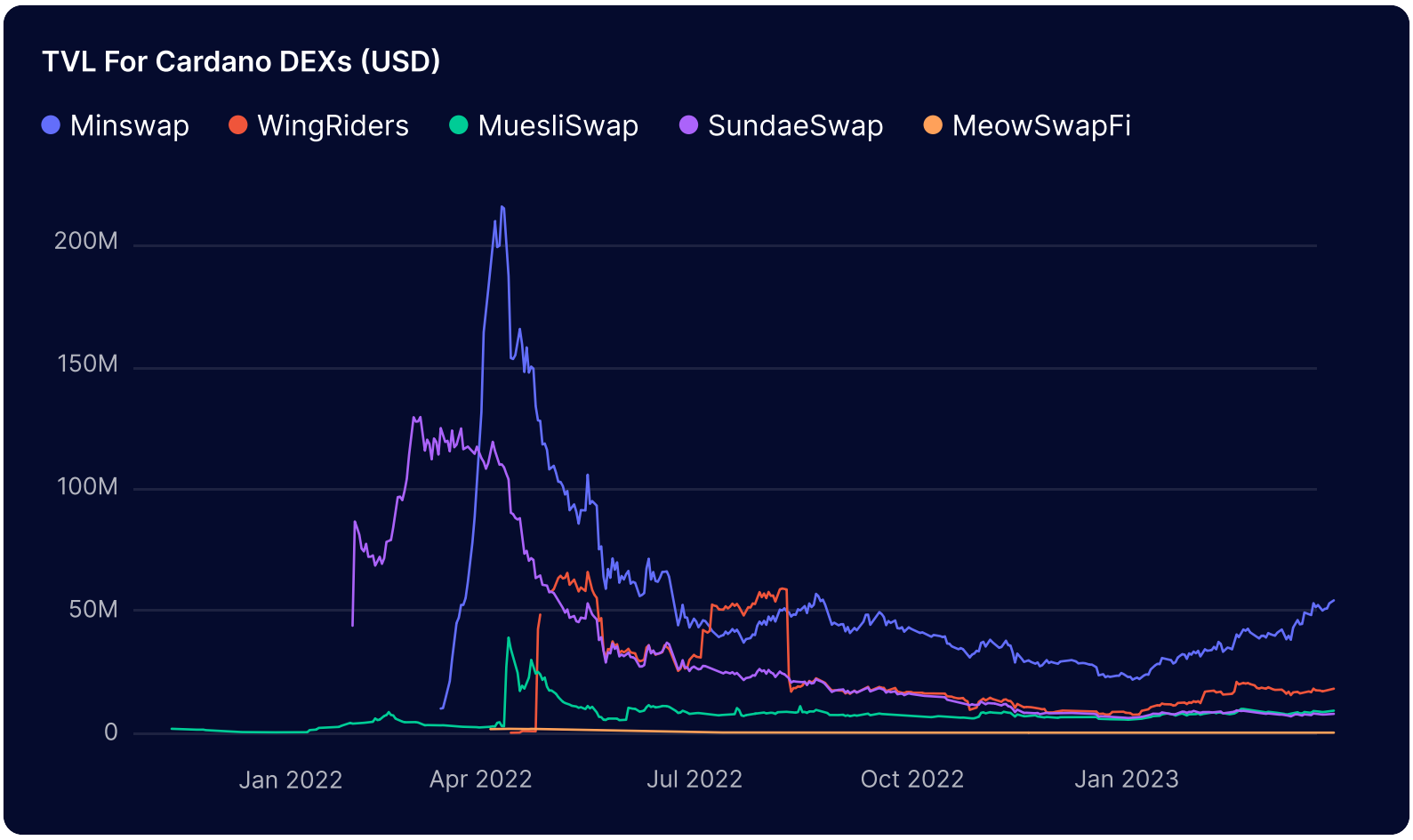
Since Minswap is now home to thousands of pools, the analysis in this report concentrated **on pools that received emissions**, especially pools with the largest emissions points (percentage of daily emissions) since these pools are the most costly to the DEX. However, future reports should analyze a more diverse collection of pools.

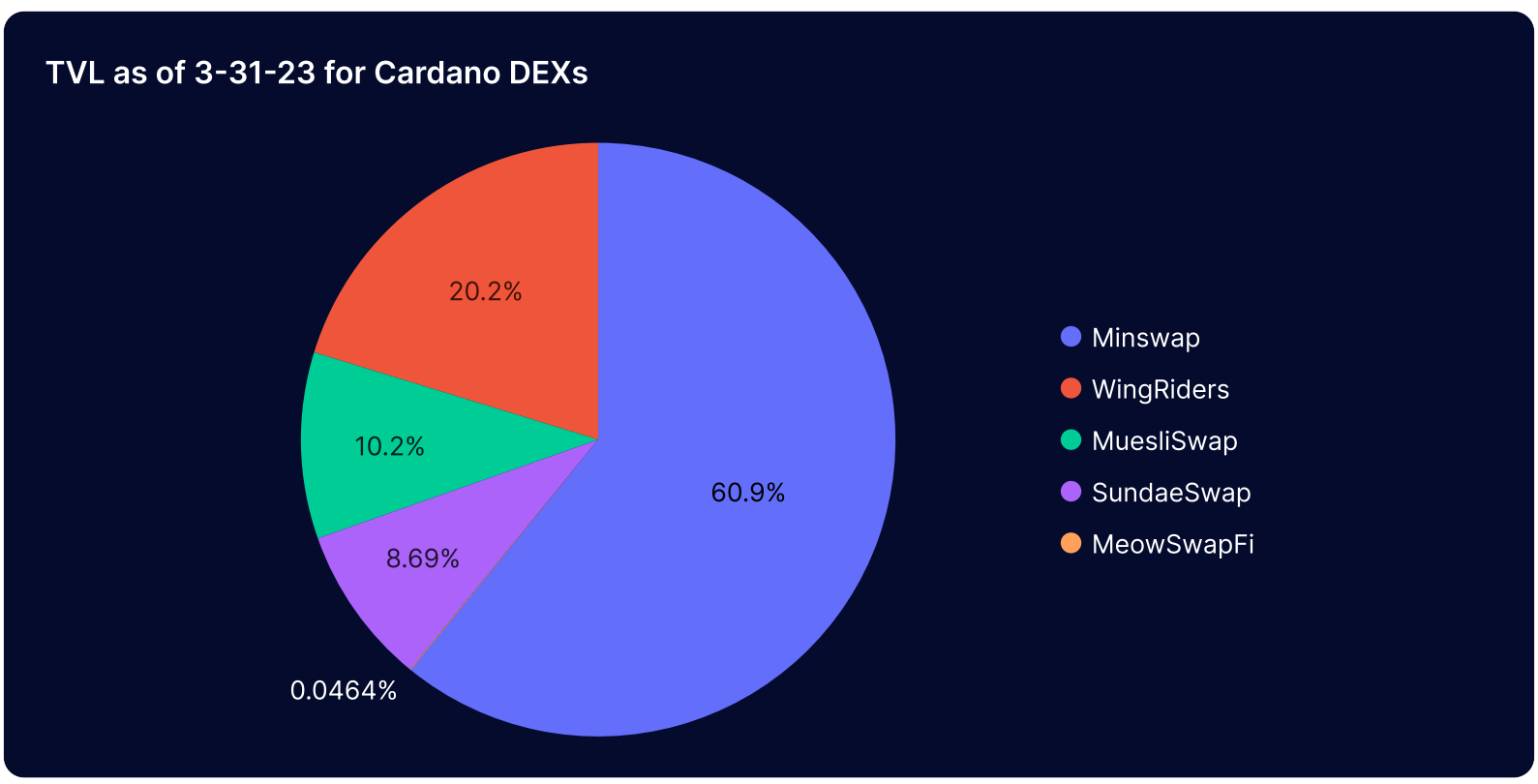
The first 2 sections of the report focus on “macro” metrics related to Minswap in comparison with other DEXs in the ecosystem. Next key performance indicators (KPI) are used to analyze emissions, focusing on models of the most traded Pools to find important variables that impact tangible value factors (e.g. TVL). Thirdly, “Pool Profitability” is explored to determine whether pools are generating more revenue than the cost of emissions. Finally, as far as analysis of DAO Treasury is concerned, several graphs are used to show the evolution of assets, the contribution to the share of Fee Switch per Pool and more.

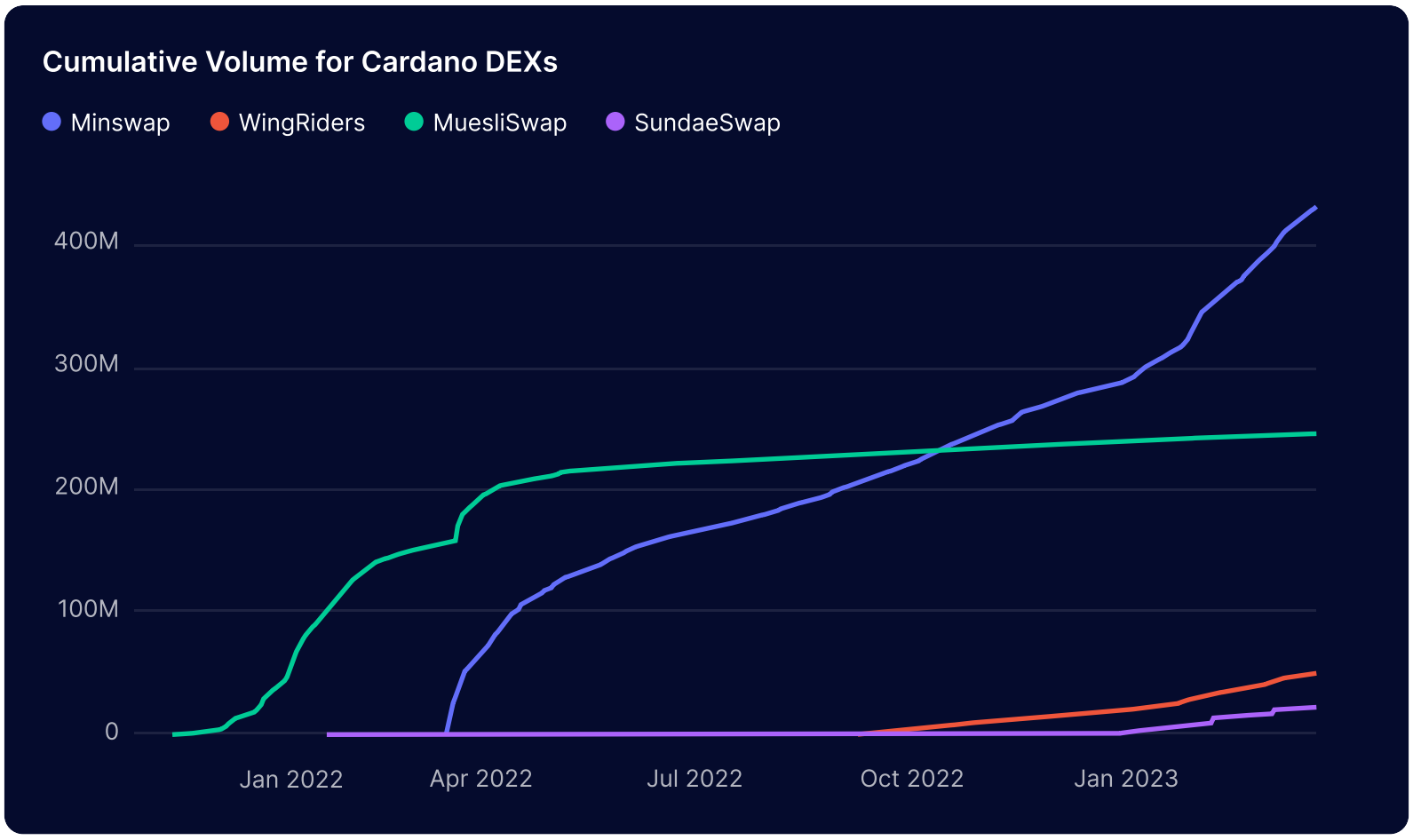
3 Analysis

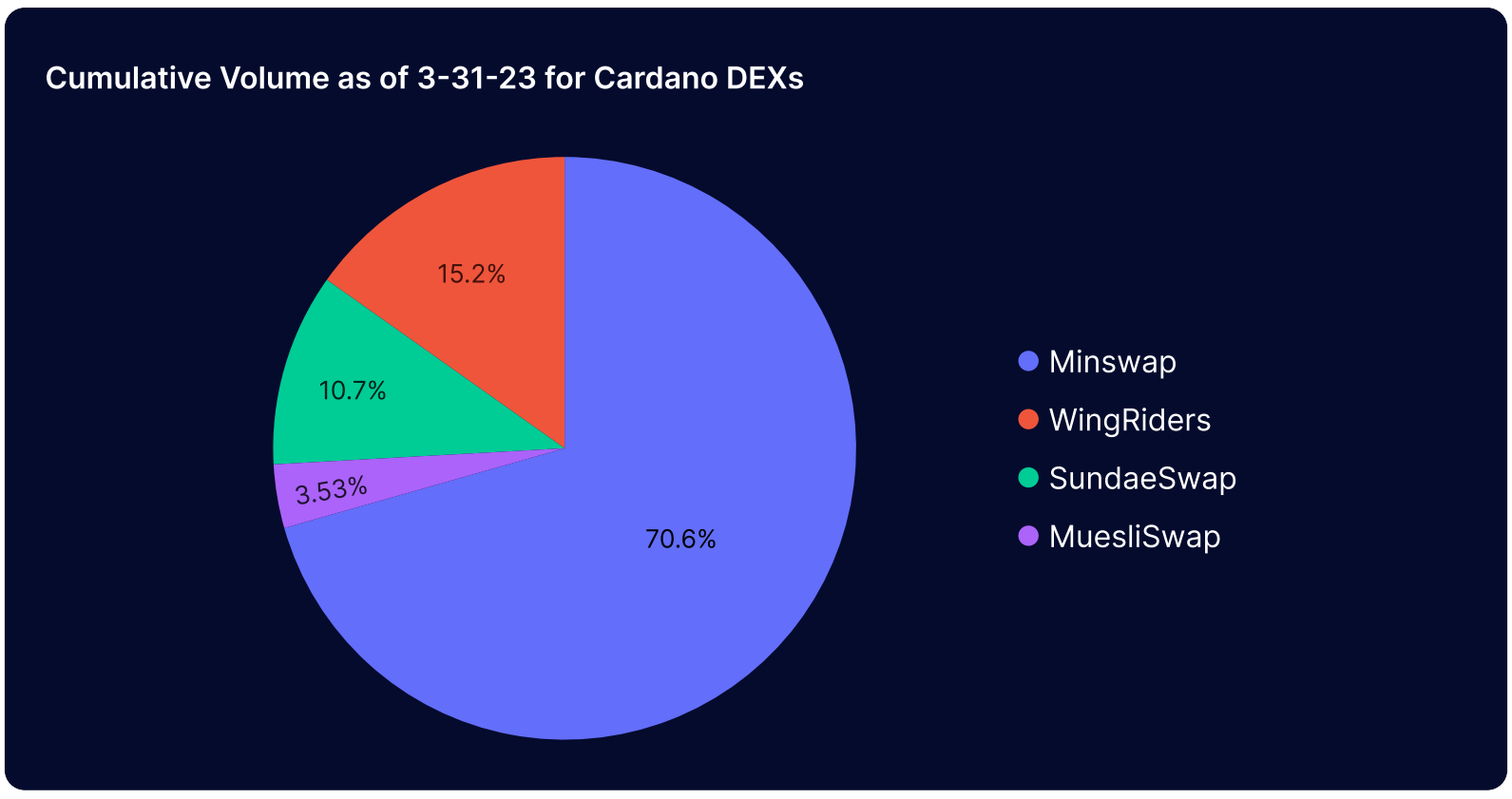
3.1 General Metrics Across Major Cardano DEXs

Since its launch, Minswap has been a dominant force among Cardano DEXs. This can be seen through many factors, including the Minswap TVL being the largest on Cardano over the majority of its lifetime (Figure 1A). Currently, Minswap has roughly 60% of all Cardano DEX TVL (Figure 1B). Even accounting for its early dominance, Minswap volume grew disproportionately faster than any other DEX as seen in Figure 1C, which shows volume growth for each DEX normalized by the volume observed for the first week of the year. Finally, as expected the total volume on Minswap make up more than half of all DEX volume on Cardano (Figure 1D).

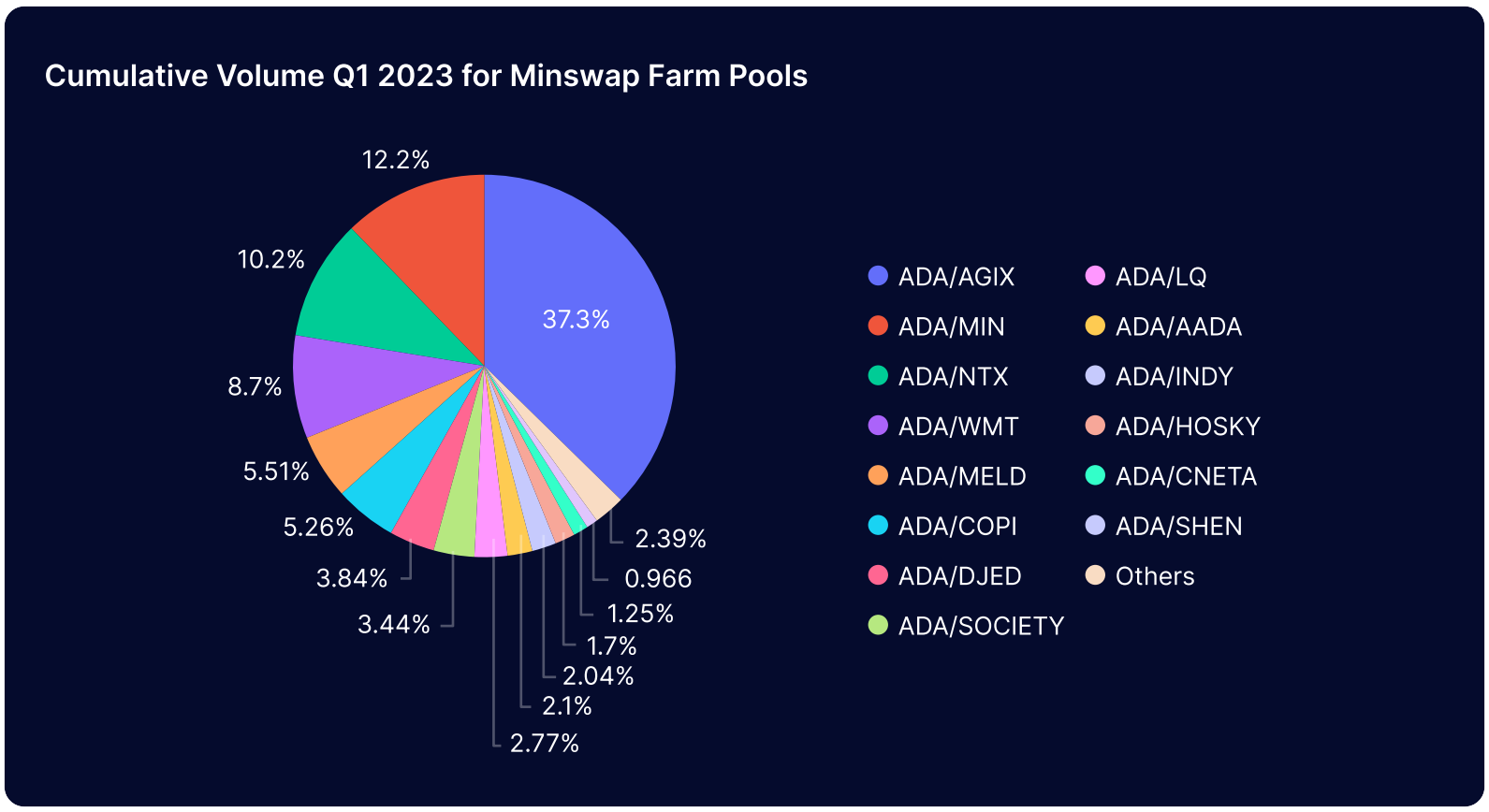





Cumulative Volume for Cardano DEXs
Minswap
WingRiders
MuesliSwap
SundaeSwap
400M
300M
200M
100M
0
Jan 2022
Apr 2022
Jul 2022
Oct 2022
Jan 2023

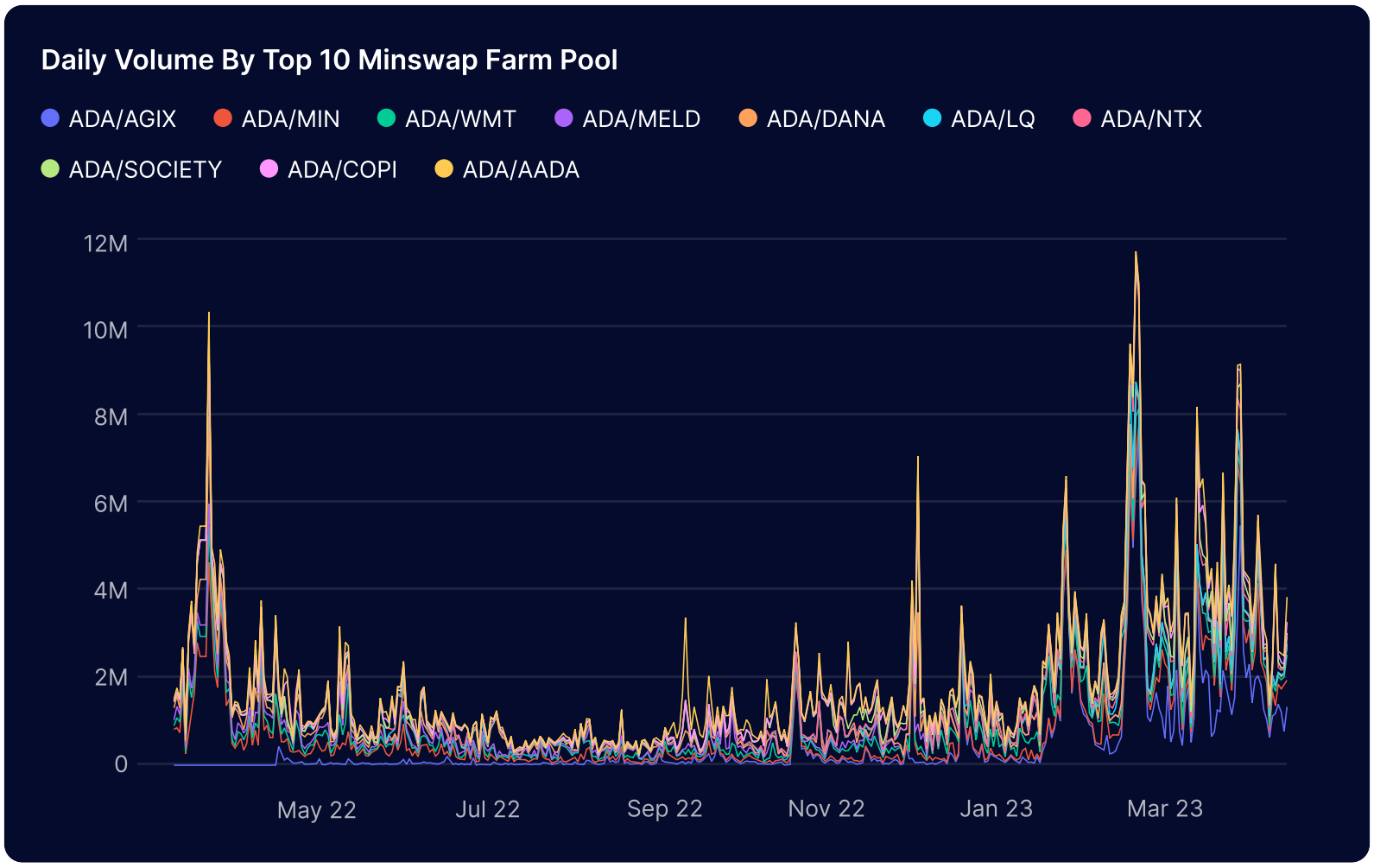

Cumulative Volume as of 3-31-23 for Cardano DEXs
15.2%
10.7%
3.53%
70.6%
Minswap
WingRiders
SundaeSwap
MuesliSwap

3.2 General Metrics Across Minswap

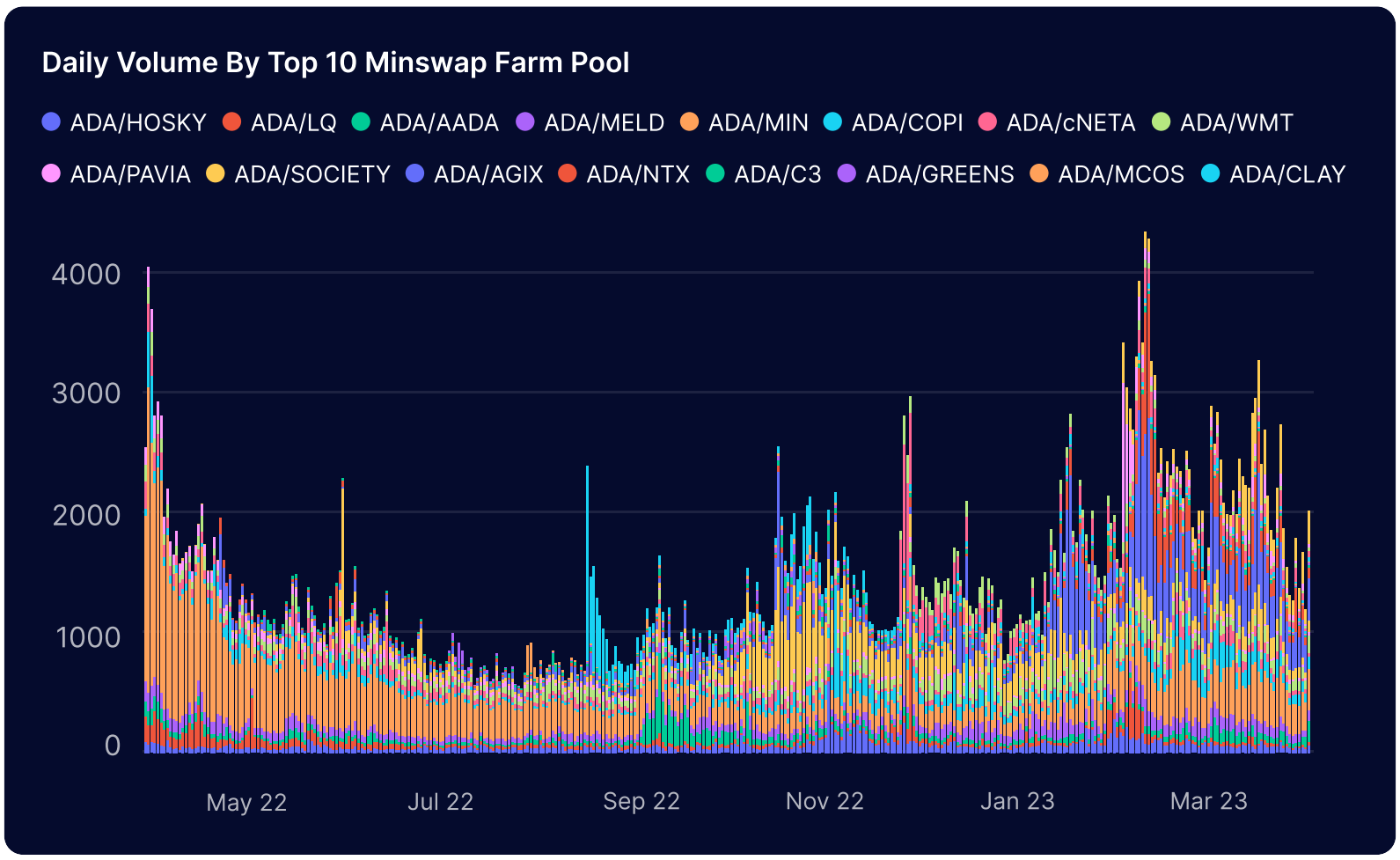


Next we will focus on the Daily Volume of Minswap's pools that have received emissions since inception. As of 3/31/2023 ADA/AGIX pool contributed over ⅓ of the total cumulative volume (this is a good proxy for fee switch revenue).

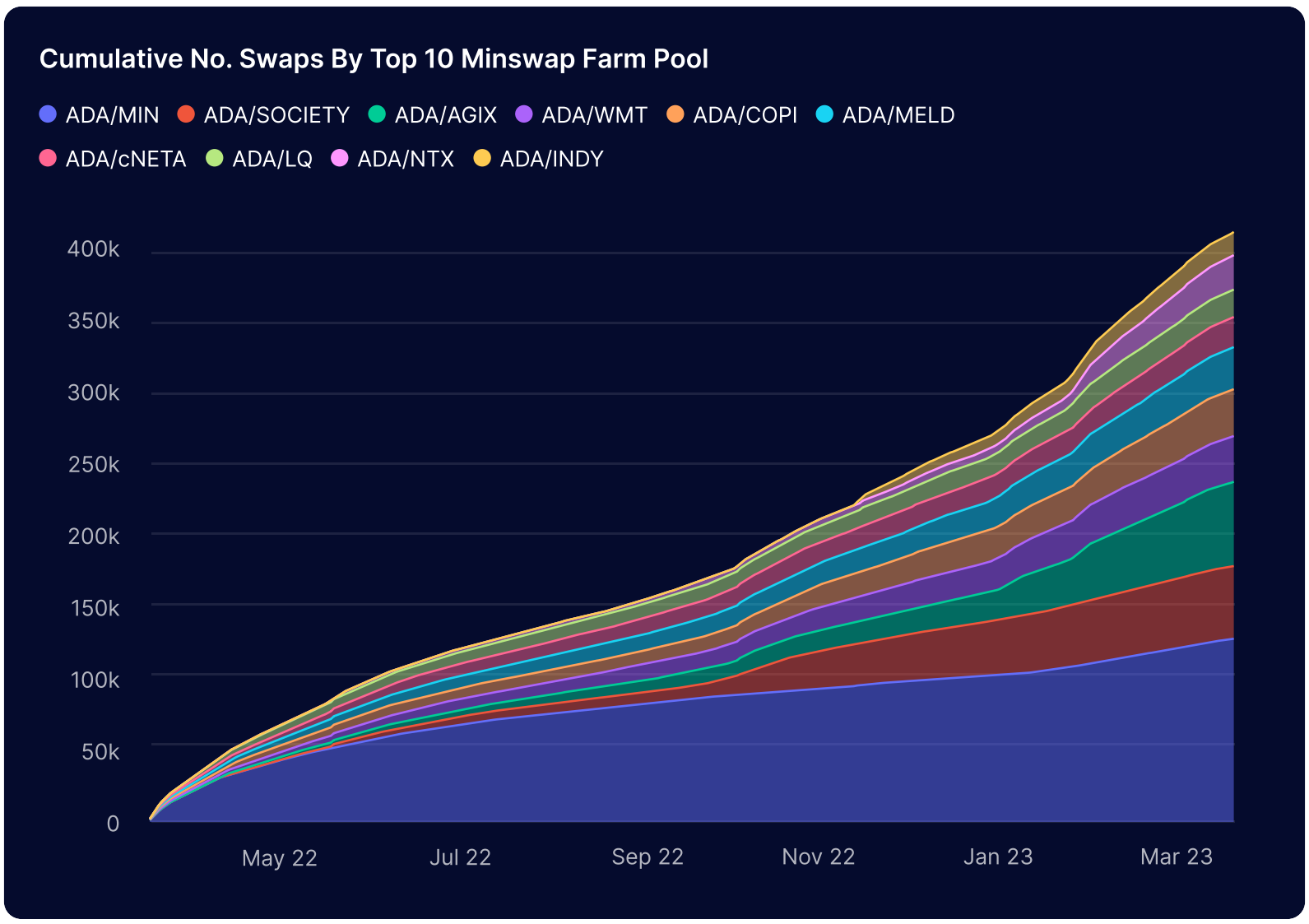
You can also see the Volume distribution per day.



This graph shows the number of swaps per day per pool. Note that this graph ignores the size of the swap, just counts each swap as 1. It's a good proxy for Batcher Fees (2 ADA Fixed Fee per Swap of which a part goes to Minswap Labs).

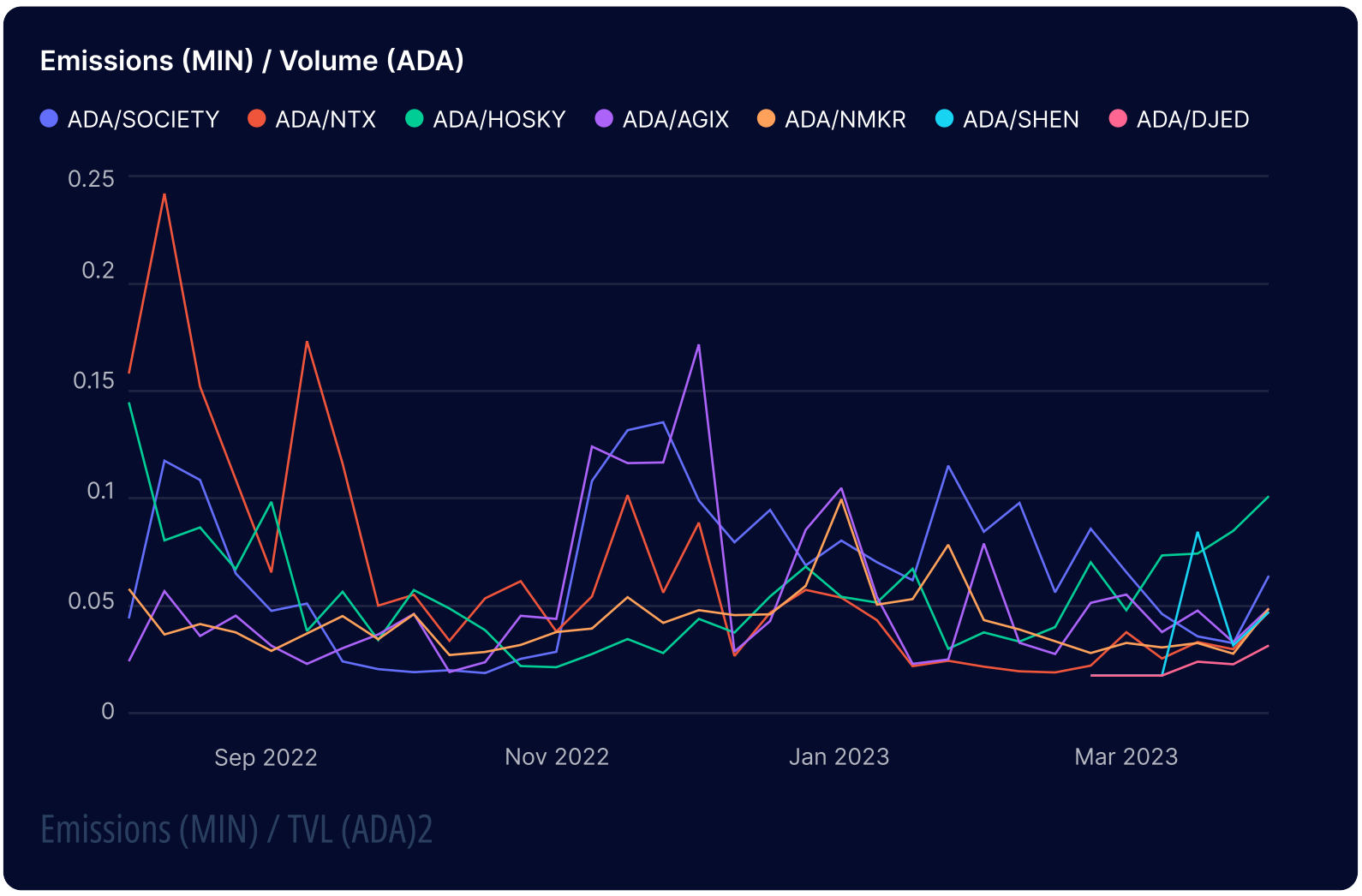


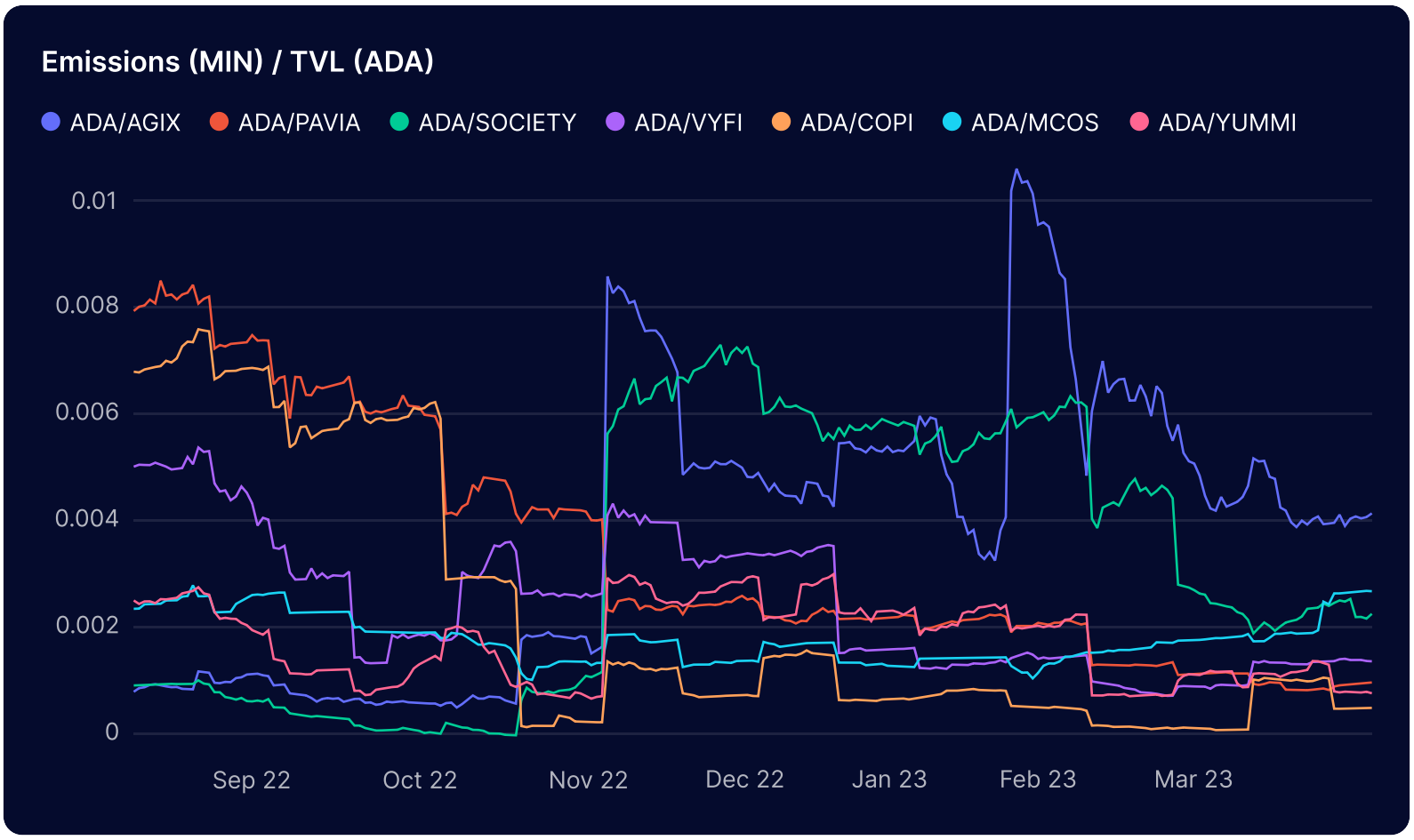
This next graph shows the cumulative number of swaps for the top 10 pools (again this ignores the size of each swap, just counting each swap as '1' regardless if it was 1 ADA or 1M ADA).



3.3 Emissions Analysis

This first graph shows the Emissions (in MIN) paid out per day versus the Volume (in ADA). It's a good measure of the efficiency and cost of Volume paid in MIN Emissions for this pool. Let’s focus on AGIX, AGIX is the purple line that spikes up a bit in the middle. The average Emissions (in MIN) per unit of Volume (in ADA) = 0.04. This tells us that Minswap has compensated AGIX Liquidity Providers on average 0.04 MIN for each ADA of volume these Liquidity Providers have market made. Ideally, we would like to see this metric decreasing over time as volume increases or at a minimum stays constant.



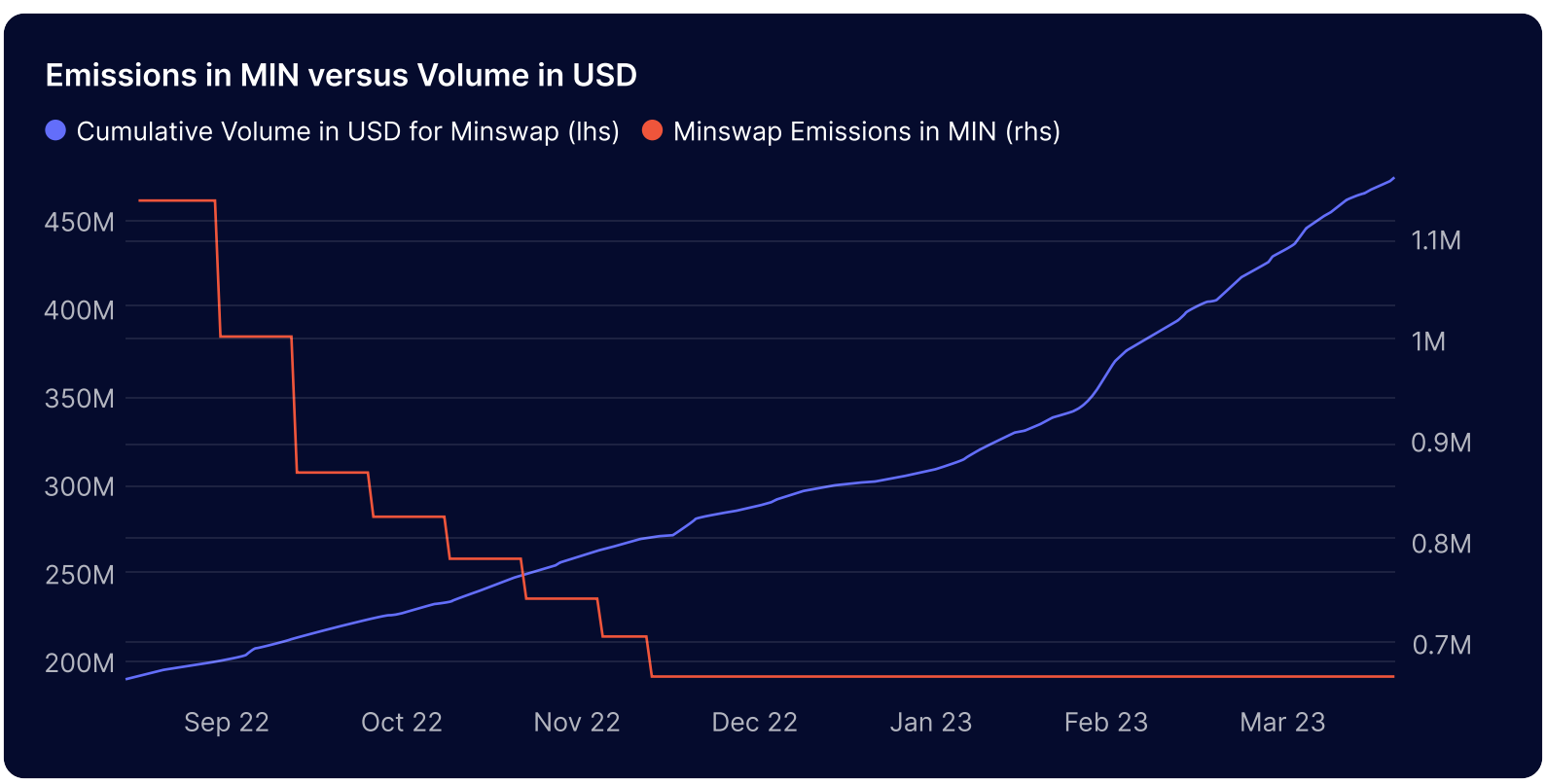


This next graph shows the Emissions (in MIN) paid out per day versus the TVL (in ADA). It's a good measure of the efficiency and cost of TVL paid in MIN Emissions. AGIX is the blue line with some spikes. The average Emissions (in MIN) per unit of TVL (in ADA) = 0.004.

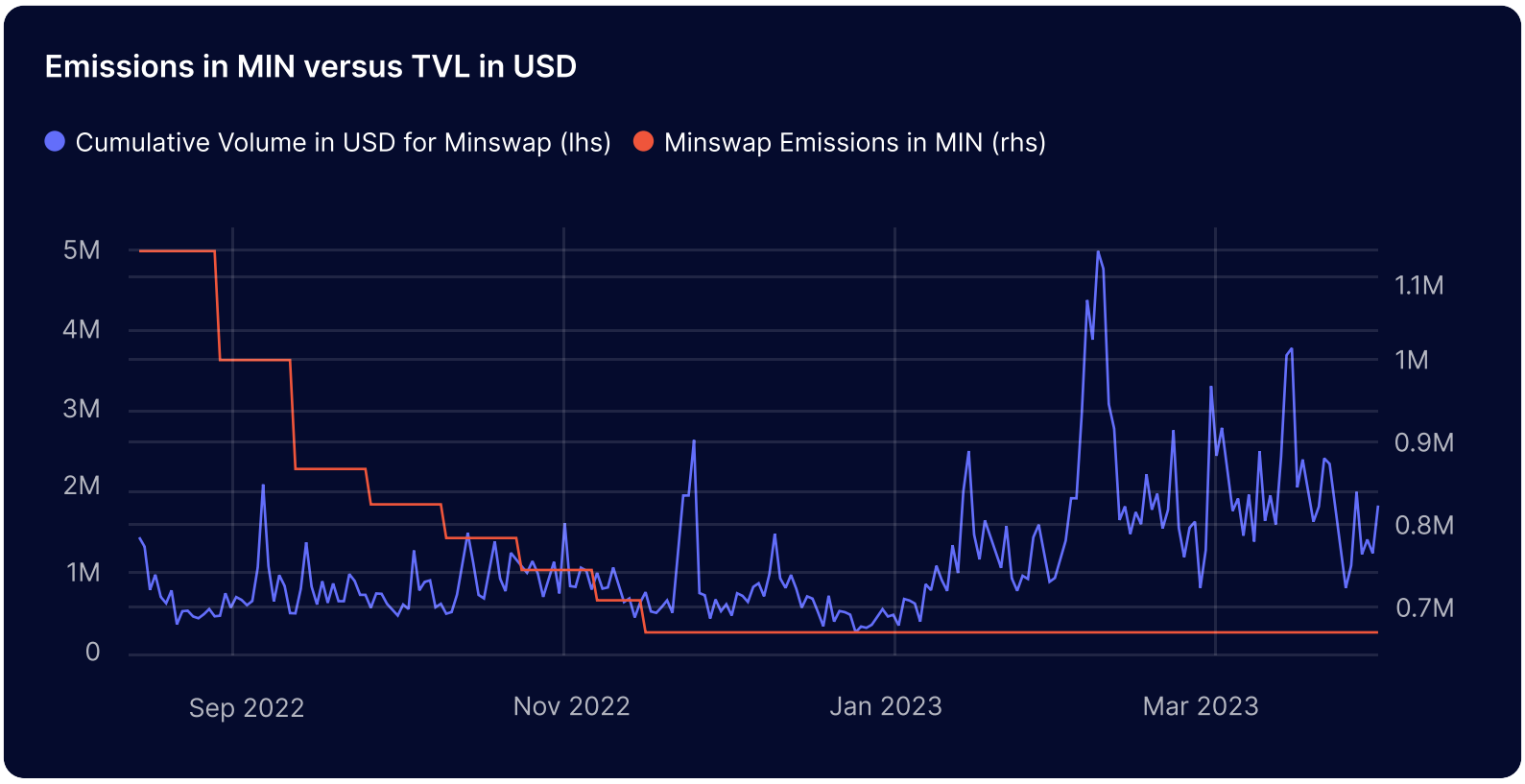
This means that Minswap has compensated Minswap AGIX Liquidity Providers 0.004 MIN for every ADA of TVL (liquidity) they have provided, and paid them 0.04 MIN for every ADA of Volume they have helped in making the AGIX market liquid. Again, ideally we would see this measure decrease over time as the TVL of the pool increases or stays constant.

Since the start of the Minimax Program, Emissions denominated in MIN have consistently decreased while initially TVL took a hit, but has since rebounded strongly.

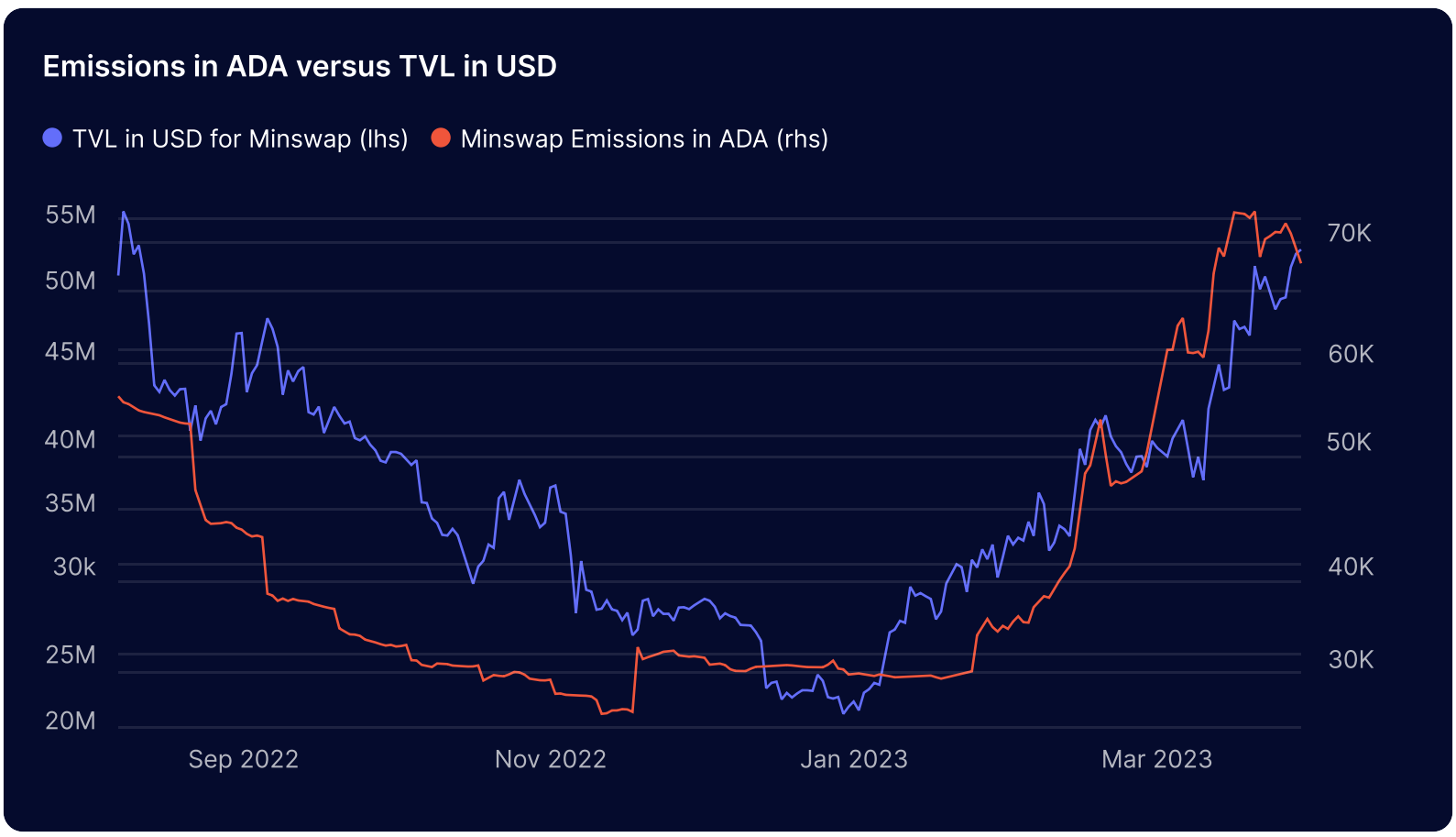
Cumulative Volume tells a similar story where volume initially slowed but has since picked up, especially since February 2023 (you can tell by the steepness of the cumulative volume slope)



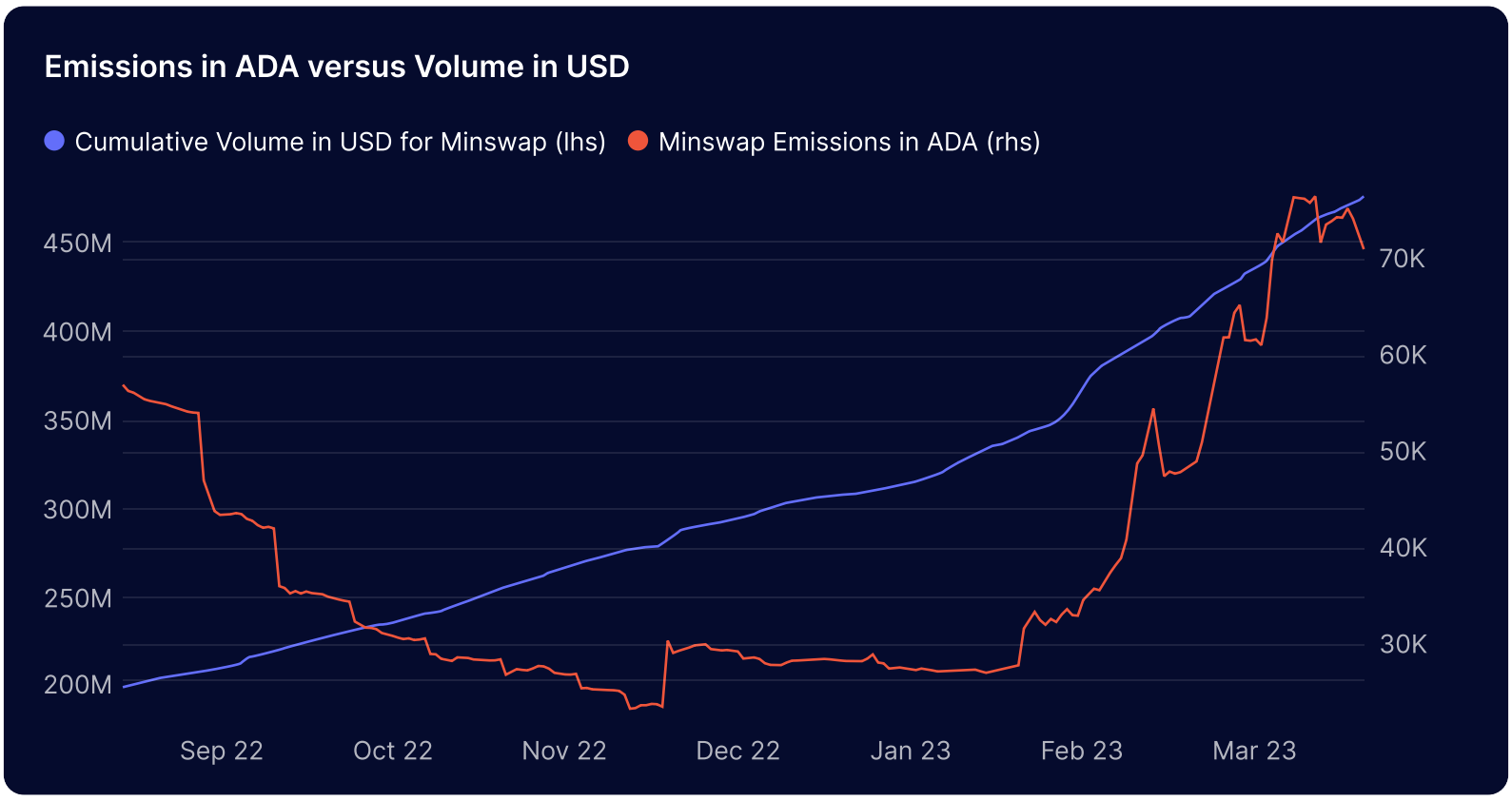
You can see the daily Volume versus Emissions in MIN below.



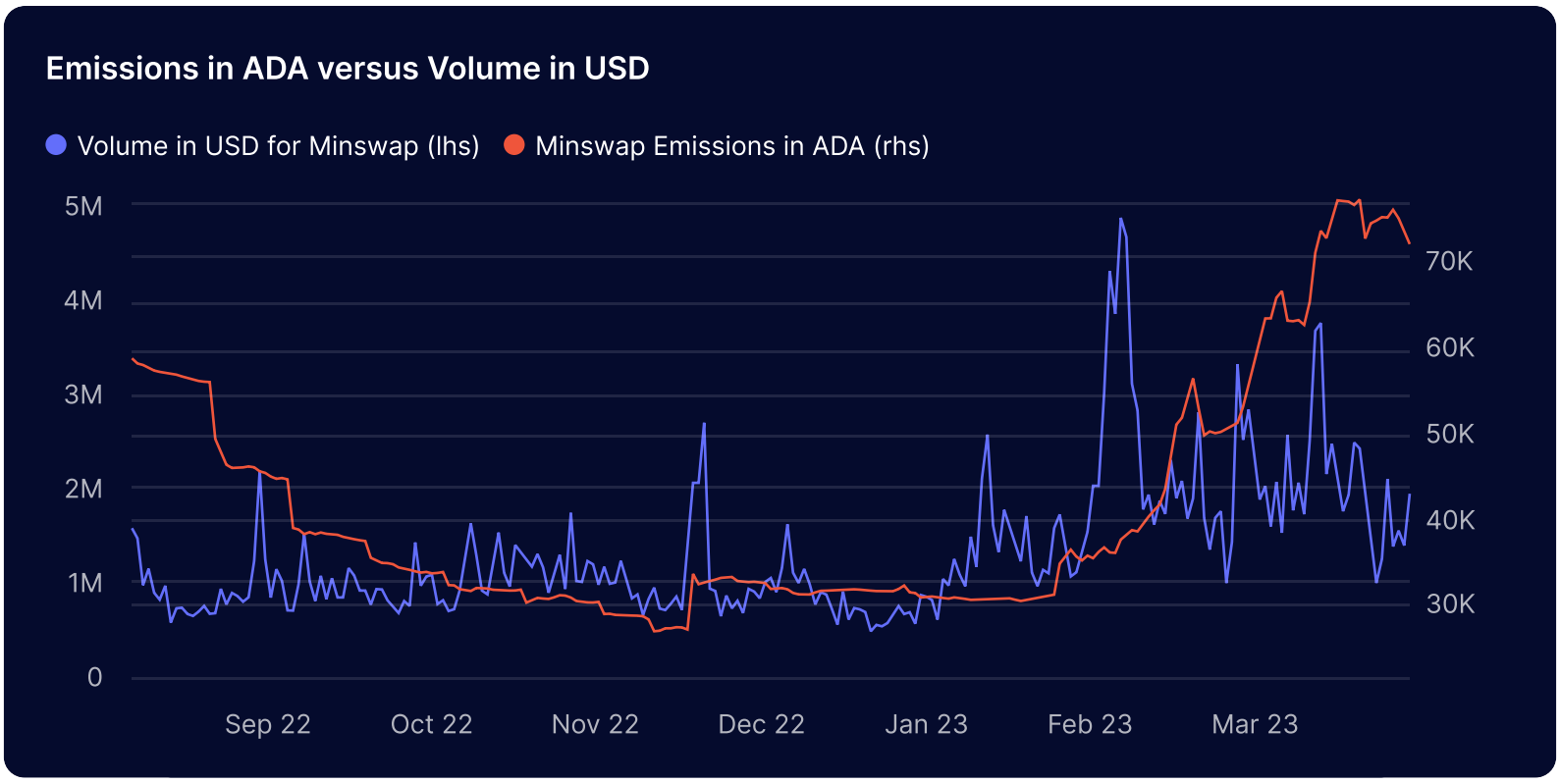
The story looks a bit different when we look at TVL versus Emissions denominated in ADA. As the price of MIN has increased in ADA, even though emissions in MIN have decreased, emissions in ADA have actually increased.



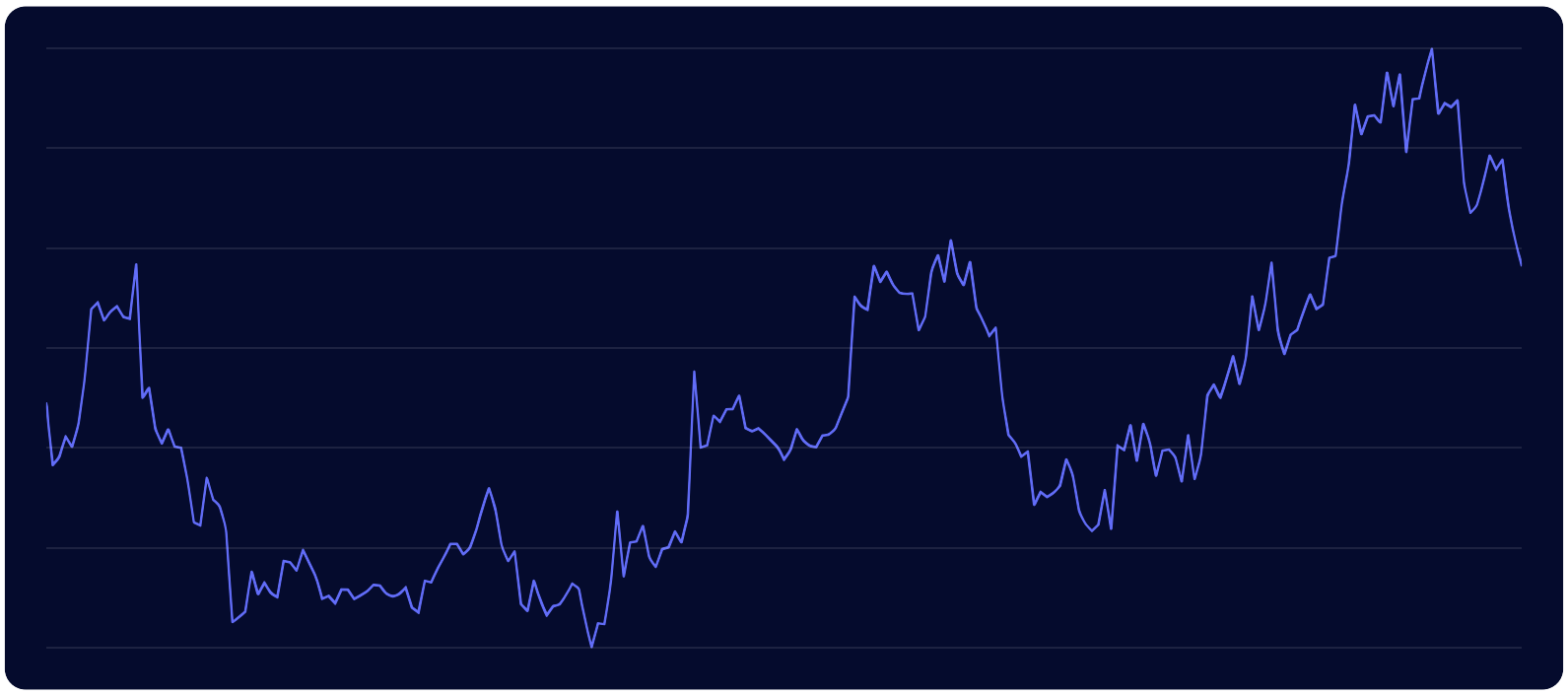
Cumulative Volume tells a similar story where volume initially slowed but has since picked up, especially since February 2023 (you can tell by the steepness of the cumulative volume slope)



Daily Volume tells a similar story where volume initially slowed but has since picked up, especially since February 2023.



This chart is an important one. This shows the Minswap Emissions in ADA divided by the TVL in USD. This basically says how much emissions does Minswap pay (denominated in ADA) per day per 1 dollar of TVL. This chart could be an interesting gauge on how to view the correct amount of emissions to target for the entire protocol per unit of TVL. The lower this number, the more efficient emissions are. We would like to see this chart showing an efficient ratio while TVL is increasing or static.



3.4 Emissions Analysis Across Pools

There are many different ways to attempt to model TVL based on inputs like Emissions, Price, Volume, etc. Below we show multiple different models and highlight some interesting findings.

TVL Dependent on Emissions Points and Price and Volume

There is a decent fit (high adjusted R-squared means decent fit highlighted in gray) for many Farms here. Also if we look at the p-values (highlighted in tan), we see that Emissions Points are statistically significant at a 5% threshold for most of the Farms, except for LQ. Thus, we can look at the loading/parameter that the model outputs for Emissions Points to gauge which farms are more sensitive to an increase or decrease in Emissions Points relative to other farms.

NTX seems to be the most sensitive with a high parameter and decent model fit. This value (15,860) says that for every 1 point (remember 1 point = 0.01%) increase in relative MIN Emissions for NTX, the model predicts TVL to increase by 15,860 ADA.

DJED also looks high but we must discount that given the model fit is not high. MIN and PAVIA look decently high as well. It's interesting to see that COPI has a decent model fit but also a negative value here. Thus one might conclude that Emissions are not a very important factor for COPI farmers (other variables like price and unmodeled variables may be more important). WMT has a negative value as well, but not a great model fit.

	AGIX	MIN	WMT	MELD	LQ	AADA	COPI	CNETA	PAVIA	DJED	INDY	NTX	SOCIETY
m3	m3	m3	m3	m3	m3	m3	m3	m3	m3	m3	m3	m3	m3
adjR2	0.95	0.98	0.50	0.18	0.84	0.46	0.96	0.94	0.98	0.25	0.90	0.95	0.94
pvals_Emissions(Points)	0.03	0.00	0.00	0.03	0.10	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00
pvals_Price	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.48	0.00	0.00	0.00
pvals_Volume	0.00	0.00	0.96	0.07	0.00	0.06	0.00	0.70	0.03	0.19	0.00	0.14	0.00
pvals_const	0.00	0.00	0.00	0.00	0.01	0.36	0.00	0.00	0.00	0.71	0.00	0.00	0.00
params_Emissions(Points)	1,324.19	6,508.43	-6,897.88	3,076.35	2,099.53	3,114.02	-786.14	2,926.31	5,382.52	14,623.71	296.16	15,860.12	1,259.94
params_Price	6,680,259.74	442,004,869.90	3,313,146.66	-84,188,461.75	146,918.10	1,577,932.34	12,061,165.67	36,577,457.07	49,078,397.08	196,914.88	163,804.47	5,461,654.63	11,418,420.13
params_Volume	-0.23	-0.77	-0.01	-1.44	-1.29	-0.49	-0.12	0.06	-0.48	0.22	0.45	0.07	0.26
Start Date	8/13/2022	8/13/2022	8/13/2022	8/13/2022	8/13/2022	8/13/2022	8/13/2022	8/13/2022	8/13/2022	3/9/2023	11/23/2022	8/13/2022	8/13/2022

TVL Dependent on Emissions (in ADA) and Price and Volume and Price/Volume Interaction and Volume/Emissions Interaction and Total Protocol Emissions in MIN

There is a decent fit (high adjusted R-squared means decent fit highlighted in gray) for many Farms here. Also if we look at the p-values (highlighted in tan), we see that Emissions Points are statistically significant at a 5% threshold for most of the Farms, except for LQ, COPI, DJED and INDY (note DJED and INDY do not have a lot of history). Thus, we can look at the loading/parameter that the model outputs for Emissions Points to gauge which farms are more sensitive to an increase or decrease in Emissions Points relative to other farms.

NTX seems to be the most sensitive with a high parameter and decent model fit. This value (2,117) says that for every 1 ADA increase in MIN Emissions for the NTX pool, the model predicts TVL to increase by 2,117 ADA.

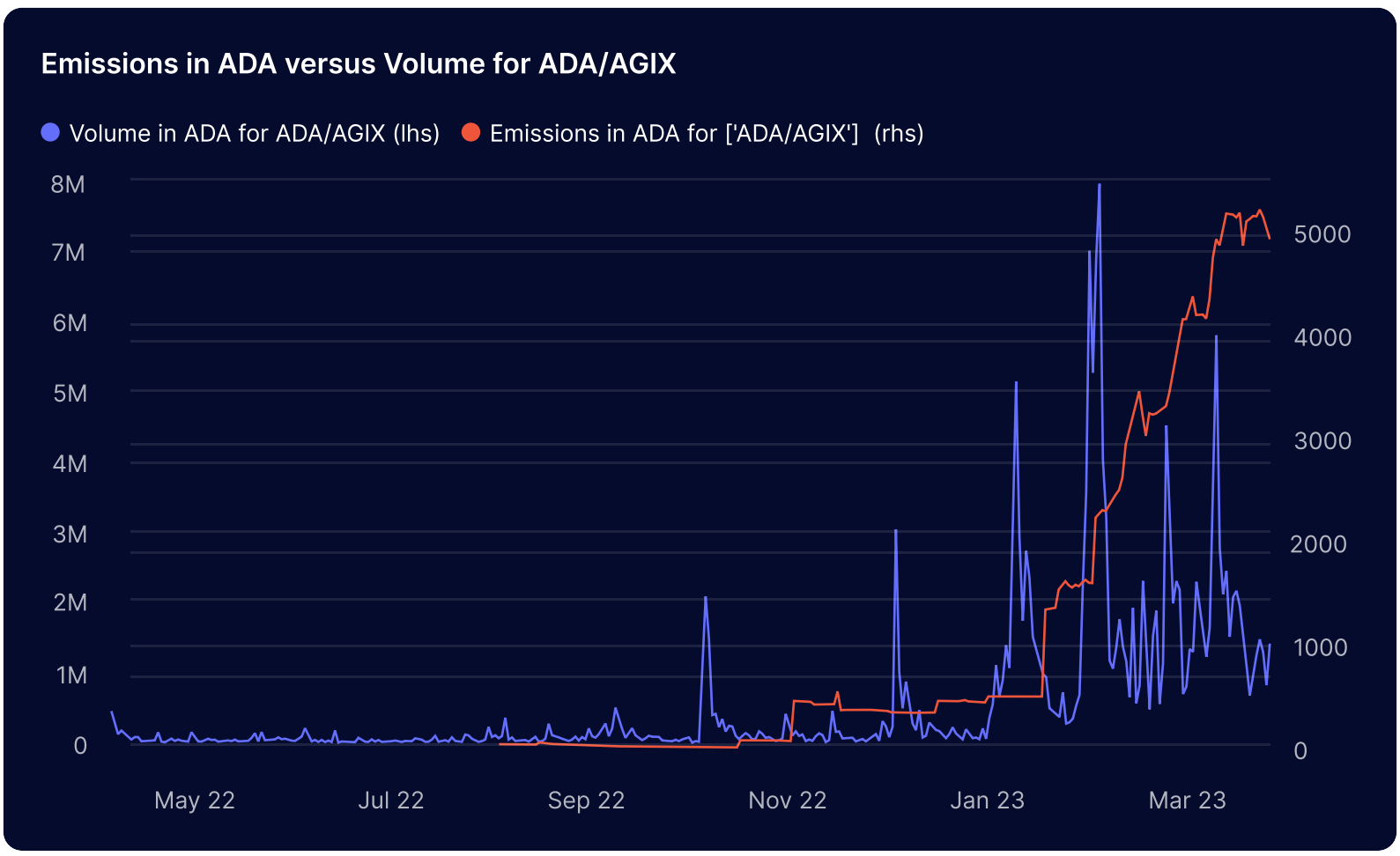
DJED also looks high but we must discount that given the model fit is not high. AGIX and MIN look decently high as well. COPI and INDY have a decent model fit but the p-value is so high for Emissions (ADA) that they are not statistically different from 0. SOCIETY has a decent fit and low p-value, but also decently low loading. This leads us to believe that Emissions (in ADA) are not very relevant for SOCIETY TVL.

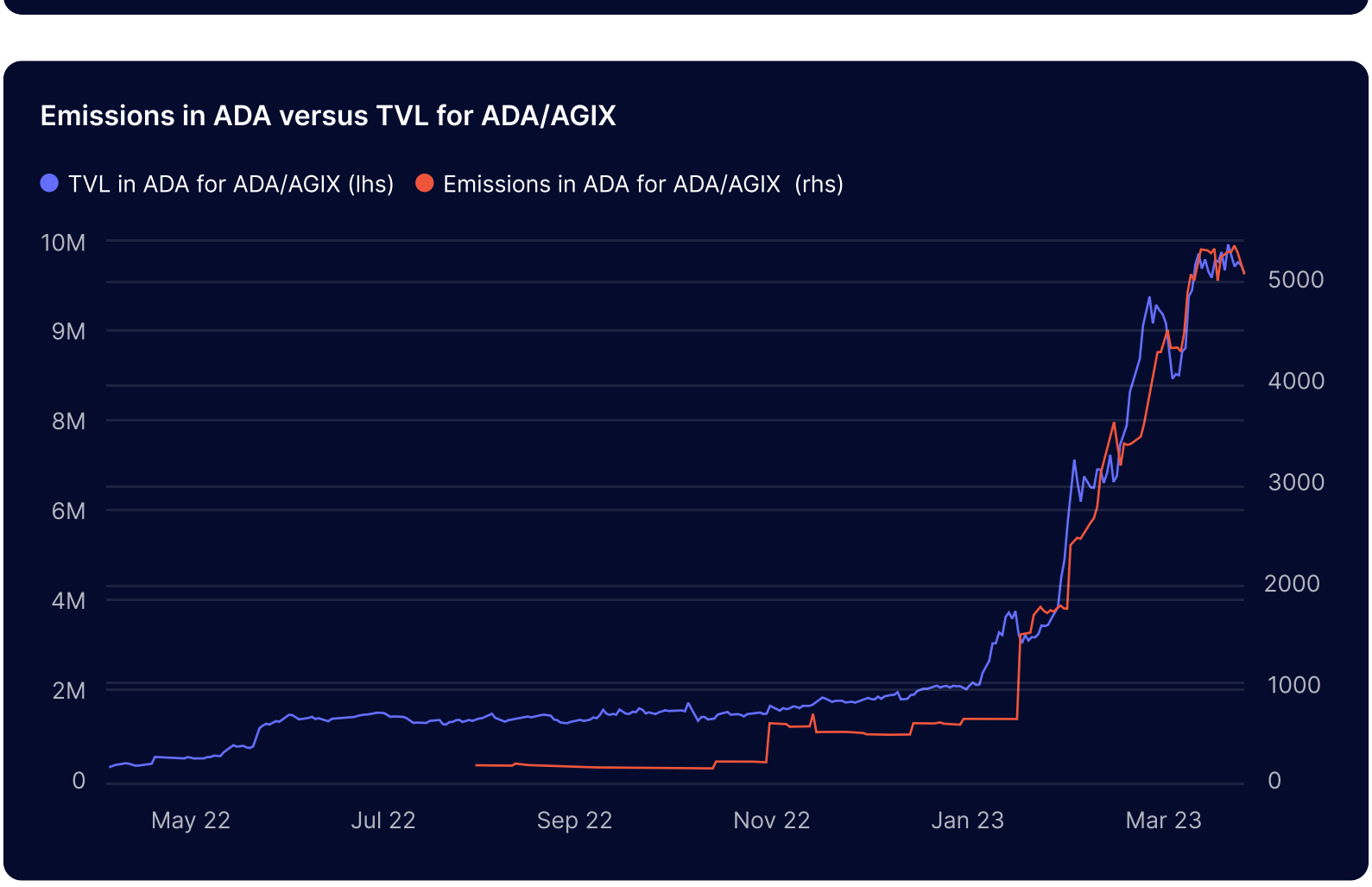
We will not go through this logic for every model, but you can take a look for yourself and see how the model outputs change as we attempt to control for different variables in the Appendix.

	AGIX	MIN	WMT	MELD	LQ	AADA	COPI	CNETA	PAVIA	DJED	INDY	NTX	SOCIETY
m6	m6	m6	m6	m6	m6	m6	m6	m6	m6	m6	m6	m6	m6
adjR2	0.99	0.98	0.51	0.50	0.93	0.84	0.97	0.96	0.97	0.15	0.90	0.98	0.97
pvals_Emissions(ADA)	0.00	0.00	0.00	0.00	0.93	0.00	0.95	0.00	0.00	0.11	0.45	0.00	0.01
pvals_Price	0.00	0.81	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.42	0.00	0.00	0.00
pvals_Volume	0.00	0.00	0.30	0.13	0.95	0.25	0.00	0.00	0.00	0.48	0.15	0.00	0.00
pvals_Volume*Price	0.01	0.98	0.49	0.30	0.18	0.00	0.00	0.00	0.00	0.56	0.02	0.00	0.00
pvals_Volume*Emissions	0.06	0.78	0.20	0.23	0.99	0.50	0.01	0.39	0.67	0.40	0.93	0.09	0.00
pvals_Total Protocol Emissions (MIN)	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.75	0.44	0.00	0.00	0.00
params_Emissions(ADA)	1,273.70	1,034.69	574.99	1,474.27	-12.67	441.83	4.25	933.59	785.35	3,855.68	102.78	2,117.38	225.91
params_Price	2,703,825.64	17,750,024.10	4,065,577.89	-36,545,048.63	127,556.95	1,503,846.71	13,384,137.80	30,349,661.80	85,633,634.20	901,435.12	192,209.49	6,298,505.57	12,726,646.43
params_Volume	0.19	-2.83	2.03	-8.71	0.10	0.88	0.47	2.47	7.62	5.21	1.43	0.57	1.16
params_Volume*Price	-0.26	1.25	-2.12	73.72	-0.02	-0.72	-7.06	-83.84	-250.17	-1.02	-0.13	-3.10	-5.22
params_Volume*Emissions	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
params_Total Protocol Emissions (MIN)	0.63	-31.88	-5.57	-3.29	5.73	-2.47	-0.59	-0.42	0.17	-4.88	1.43	-0.52	-0.59
Start Date	8/13/2022	8/13/2022	8/13/2022	8/13/2022	8/13/2022	8/13/2022	8/13/2022	8/13/2022	8/13/2022	3/9/2023	11/23/2022	8/13/2022	8/13/2022

3.5 Case Study for ADA/AGIX

The below 2 graphs focus on the AGIX/ADA Pair and show Emissions in ADA (on the right hand side) versus Volume (first graph) in ADA and TVL (2nd graph) in ADA.





The table below shows the correlation of daily Emissions versus TVL versus Volume, all denominated in ADA for AGIX. These correlation tables help confirm our suspicion that these metrics have a positive relationship to each other. The correlation between emissions and TVL is roughly 0.986. This is a pretty high correlation that helps cement the fact that emissions and TVL move in lockstep, when denominated in ADA. And that is visible in the graph above.

	Emissions (ADA)	TVL (ADA)	Volume (ADA)
Emissions (ADA)	1.000000	0.985952	0.496741
TVL (ADA)	0.985952	1.000000	0.612221
Volume (ADA)	0.496748	0.612221	1.000000

TVL Based Regressions

Let's look at an example of trying to tease out the dependence of TVL on different factors. The highlighted column, Model 3, has an adjusted R-squared of 0.95 (a pretty good fit). ‘Pvals’ tell you how significant the independent variables are in the model, the closer to 0, the more you can say they are important. The params tell you how much a change in the parameter affects the change in the TVL.

So in this model, if Emissions Points increase by 1 (1 point = 0.01%), we would expect TVL to increase by 1324.19 ADA. If price increases by 1 (so price goes up so AGIX = current price plus 1), we would expect TVL to increase by 6.68M.
This model tells us that emissions are important, but overall it seems price is more important than emissions for TVL. Overall, models 1 through 4 and the ARIMA model tell us increasing emissions will increase TVL. Models 5 and 6 have a negative sign on the emissions parameter, but also a high p-value meaning those numbers are not significant.

	AGIX	AGIX	AGIX	AGIX	AGIX	AGIX	AGIX
	m1	m2	m3	m4	m5	m6	arima
adjR2	0.97	0.98	0.98	0.98	0.99	0.99	0.97
pvals_Emissions(ADA)	0.00	0.00	0.00	0.00	0.00	0.00	0.00
pvals_Price		0.00	0.00	0.00	0.00	0.00	0.00
pvals_Volume			0.02	0.02	0.01	0.00	0.10
pvals_Volume*Price				0.19	0.01	0.01	0.00
pvals_Volume*Emissions					0.02	0.06	0.01
pvals_Total Protocol Emissions (MIN)						0.01	0.80
pvals_ma.L1							0.00
pvals_ma.L2							0.00
pvals_sigma2							0.00
pvals_ar.L1							
pvals_ar.L2							
pvals_ar.L3							
pvals_const	0.00	0.00	0.00	0.00	0.00	0.02	
pvals_ar.L4							
pvals_ma.L3							
params_Emissions(ADA)	2,009.40	1,331.09	1,385.02	1,379.62	1,240.30	1,273.70	-20.40
params_Price		2,547,269.56	2,243,320.65	2,323,166.54	2,707,415.08	2,703,825.64	-1,495,781.62
params_Volume			0.07	0.14	0.15	0.19	0.05
params_Volume*Price				-0.07	-0.26	-0.26	0.06
params_Volume*Emissions					0.00	0.00	0.00
params_Total Protocol Emissions (MIN)						0.63	-0.19
params_ma.L1							-0.48
params_ma.L2							-0.13
params_sigma2							58,519,674,571.00

Volume Based Regressions

In the table below, we look at an example using Volume as the dependent variable. The highlighted column, Model 4, has an adjusted R2 of 0.5 (a mediocre fit). 'Pvals' tell you how significant the independent variables are in the model, the closer to 0, the more you can say they are important. The params tell you how much a change in the parameter affects the change in the TVL.

So in this model, if Emissions Points increase by 1 (1 point = 0.01%), we would expect Volume to decrease by 3589 ADA. If price increases by 1 (so price goes up so NTX = current price plus 1), we would expect Volume to increase by 6.176M. And if TVL increases by 1 ADA, we would expect volume to increase by 0.36 ADA.

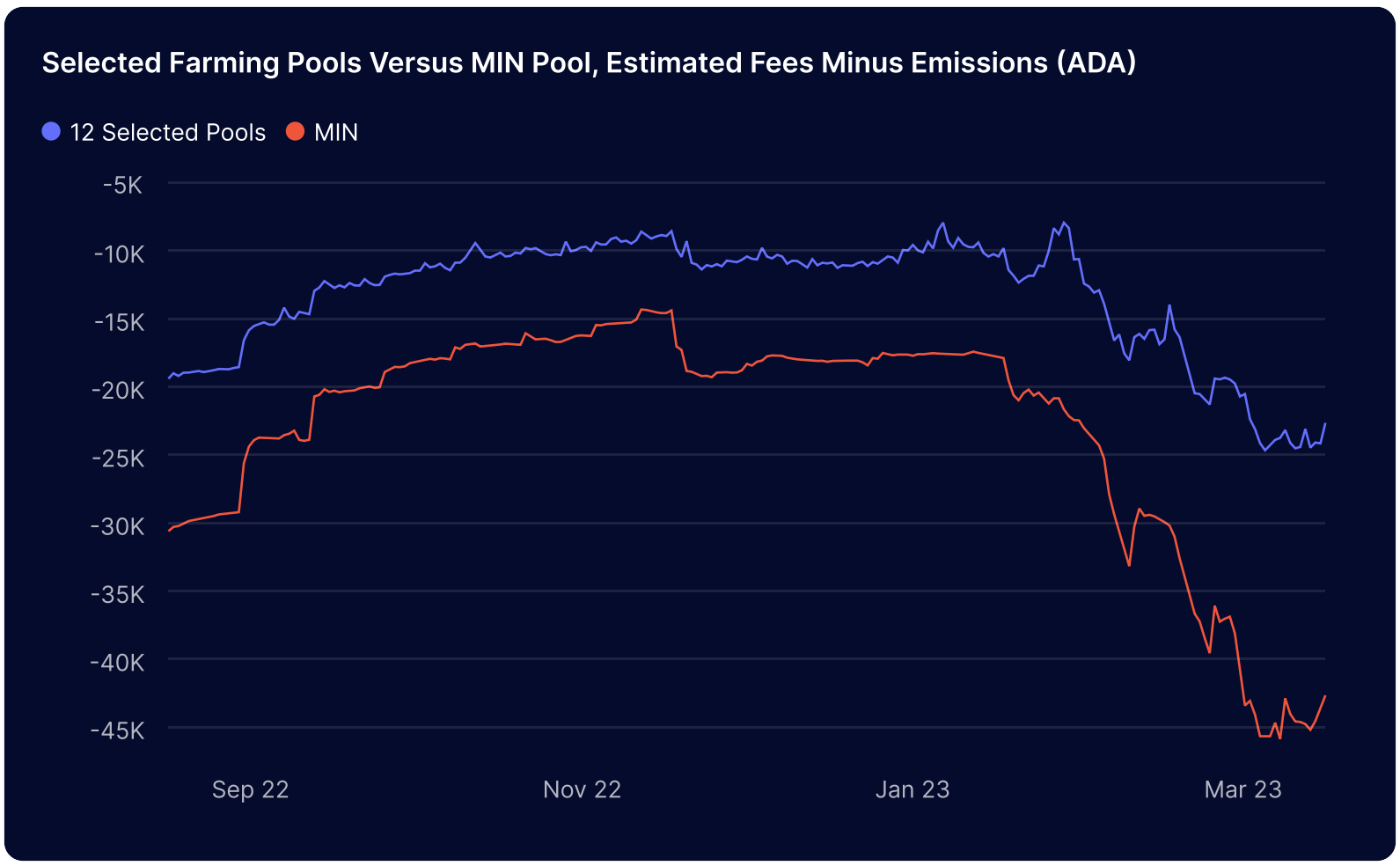
This model tells us that TVL and price help predict the moves in volume while Emissions potentially detract from volume. When you look across all the volume models, you see that Emissions matter when it is the only variable. However, as you control for more variables (and get better model fits) emissions importance and sizing changes. Our interpretation of this is: TVL is an important metric when trying to increase volume on the Minswap DEX. Emissions are important for TVL and thus are important for Volume, even if it is not as directly visible in these models. Overall, these models provide a more mixed view on how emissions directly affect volume, and none have a great fit. It is likely that emissions indirectly affect volume through TVL.

token	AGIX	AGIX	AGIX	AGIX	AGIX	AGIX	AGIX
model	m1	m2	m3	m4	m5	m6	arima
adjR2	0.32	0.40	0.44	0.50	0.53	0.53	0.38
pvals_Emissions(Points)	0.00	0.09	0.32	0.00	0.45	0.84	0.00
pvals_Price		0.00	0.00	0.00	0.00	0.00	0.00
pvals_TVL			0.00	0.02	0.00	0.00	0.00
pvals_TVL*Price				0.00	0.14	0.21	0.00
pvals_TVL*Emissions					0.00	0.00	0.32
pvals_Total Protocol Emissions (MIN)						0.44	0.92
pvals_ar.L1							0.00
pvals_ar.L2							0.00
pvals_ma.L1							0.03
pvals_ma.L2							0.00
pvals_sigma2							0.00
pvals_ar.L3							
pvals_const	0.25	0.40	0.00	0.00	0.00	0.00	
pvals_ma.L3							
pvals_ma.L4							
pvals_ar.L4							
params_Emissions(Points)	2,571.19	-1,207.84	-701.08	-3,588.99	-821.65	-266.43	-504.52
params_Price		2,344,587.82	4,288,902.41	6,176,772.79	4,113,267.87	3,870,695.23	4,828,497.91
params_TVL			-0.32	0.36	1.05	1.13	1.11
params_TVL*Price				-0.48	-0.18	-0.15	-0.52
params_TVL*Emissions					0.00	0.00	0.00
params_Total Protocol Emissions (MIN)						0.46	0.12
params_ar.L1							-0.92
params_ar.L2							-0.26
params_ma.L1							-0.17
params_ma.L2							-0.81
params_sigma2							529,440,000,000.00

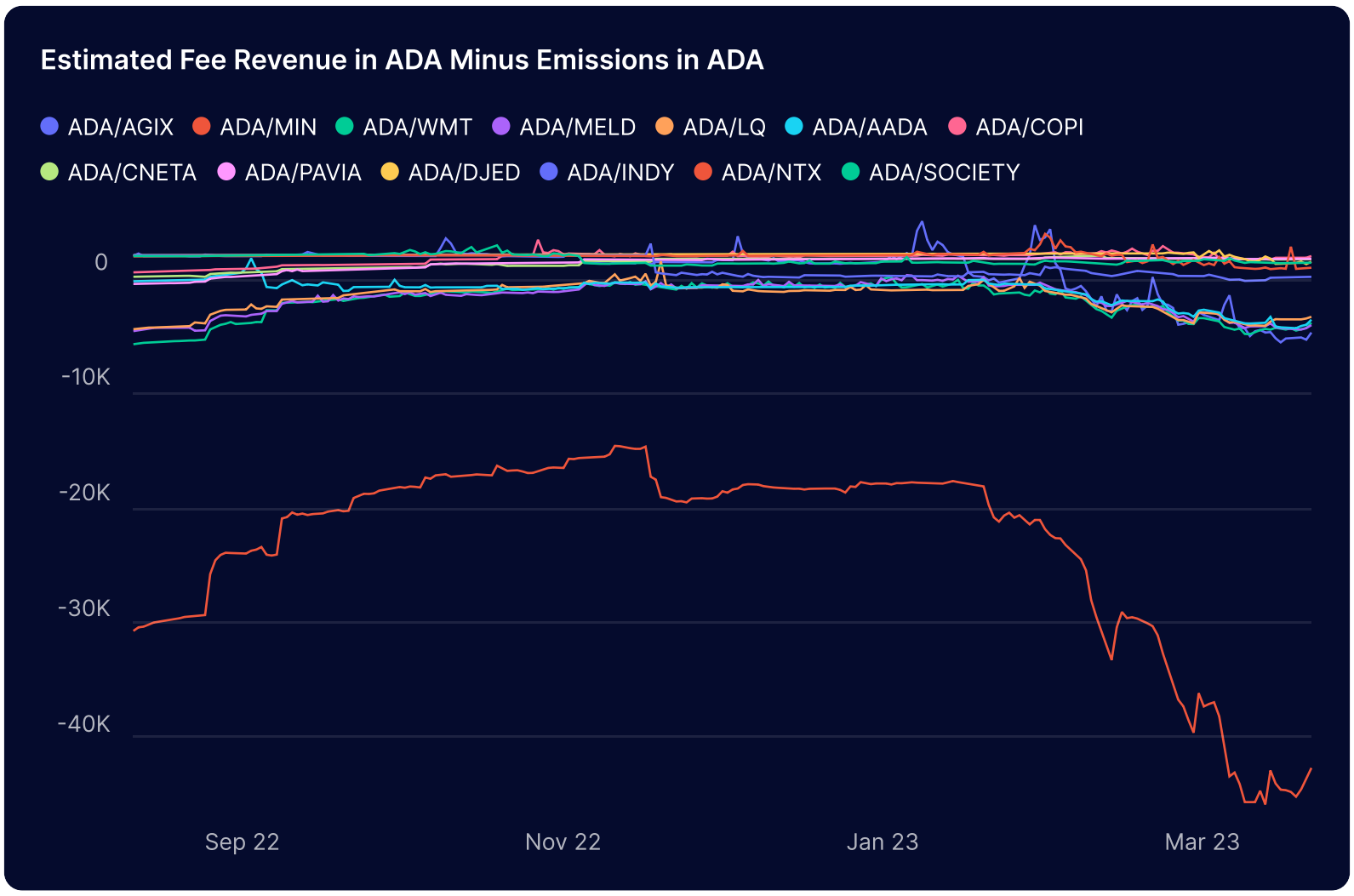
3.6. Pool Profitability

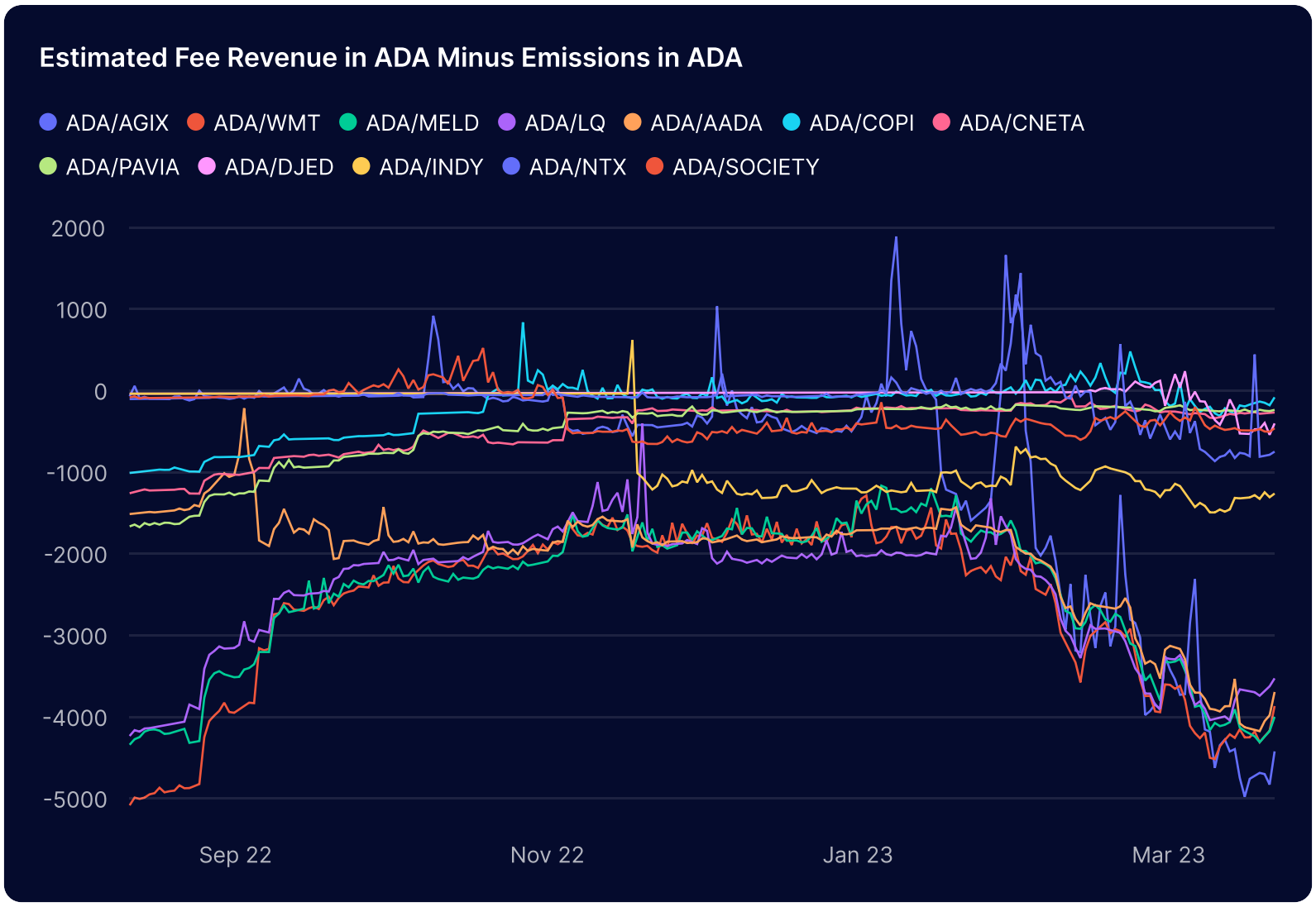
It's interesting to view the profitability of pools. We can measure estimated fee revenue (daily volume * 0.0005) minus emissions, both in ADA.

The 12 selected pools are: ['ADA/AGIX', 'ADA/WMT', 'ADA/MELD', 'ADA/LQ', 'ADA/AADA', 'ADA/COPI', 'ADA/CNETA', 'ADA/PAVIA', 'ADA/DJED', 'ADA/INDY', 'ADA/NTX', 'ADA/SOCIETY']

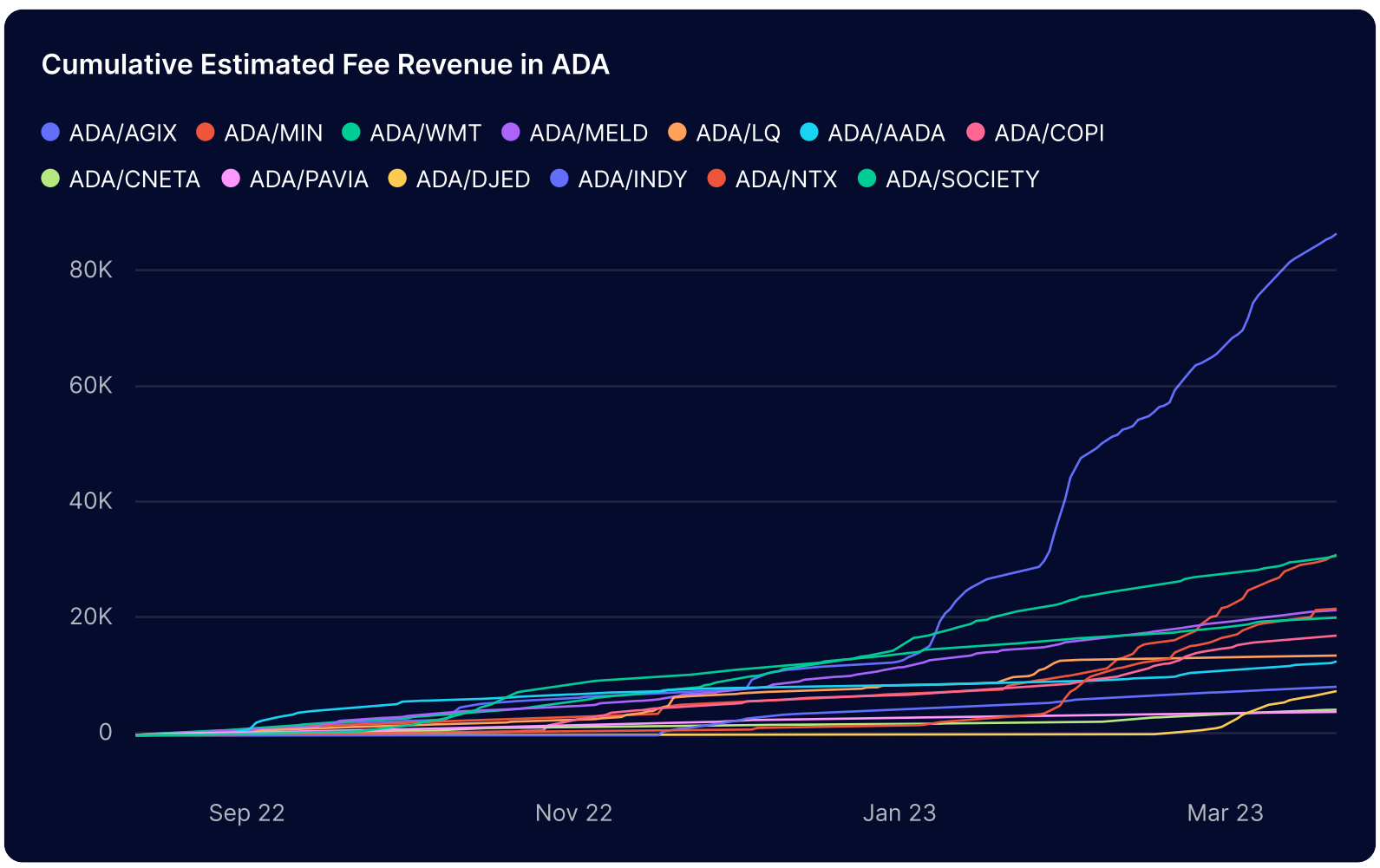


The next 2 graphs show estimated fee revenues minus emissions, both denominated in ADA, per pool. The first graph includes the ADA/MIN pool, the 2nd graph does not.





What all this says is that certain pools are closer to profitable than other pools when measuring profitability as Estimated Fee Revenue minus Emissions distributed (in ADA). DJED and NTX are the closest to profitable, while MIN, WMT, LQ and MELD are the least profitable at the moment. This is important but we also must remember that Minswap is still very young and there should not be an expectation of protocol profitability at the moment. Just the fact that there is a source of fee revenue for Minswap is meaningful. This next chart estimates the cumulative fee revenue from each pool over time. It's great to see the protocol earning almost 700K ADA (currently) from the Fee Switch.



4 DAO Treasury Analysis

When it comes to the DAO Treasury, the LBE was not only how the initial MIN/ADA Liquidity Pool was launched, but also the first time the concept of “Protocol Owned Liquidity” (POL) was implemented on Cardano. Basically, POL means the Assets that the Minswap DAO Treasury owns and manages.

It's important to expound the reasoning behind the POL focus of Minswap. POL is liquidity that belongs to the DAO, meaning it does not depend on external Liquidity Providers (who usually need to be incentivised with MIN Tokens). This Liquidity belongs to the DAO (which can decide on how it's managed) and earns swap fees for it as well. While liquidity from external Liquidity Providers might move elsewhere depending on incentives (since mercenaries are quite avaricious), or be removed in case of volatility, POL remains on the DEX no matter what happens. This gives a very important cushion of liquidity.
A real-time, detailed breakdown of the Minswap DAO POL and how those Assets are managed can be accessed in the POL Dashboard. As of May 31st 2023, the POL Assets in the Minswap DAO Treasury are:

Protocol Owned Liquidity in DAO Treasury

ADA/MIN	ADA/INDY	ADA/MCOS
15,964,975 ₳	226,868 ₳	61,857 ₳
5,982,603 USD	85,016 USD	23,180 USD

Fee Switch

515,325 ₳ ▲ 74.93%

Total fees accumulated

Value in $ADA generated for the DAO Treasury through the Fee Switch.

Assets Accumulated

254,865 ₳

2,787,164 MIN

4.1 LBE POL

Minswap was the first Protocol on Cardano to embrace POL (Protocol-Owned-Liquidity) through the Meteor LBE. The LBE ensured a fair and transparent way to determine the initial MIN/ADA price, while enabling the DAO Treasury to keep 50% of the LP Tokens generated from the event.

These MIN/ADA LP Tokens are currently not Yield Farming, however they passively accumulate Trading Fees from swaps. The decision on whether or not to stake these LP Tokens is a tough one. On the one hand, it means that DAO Treasury Assets are missing on the chance to Farm ADA and MIN at attractive APRs. On the other hand, having the DAO Treasury farm its own platform token seems circular and would diminish APR for other farmers. POL farming MIN-ADA might be considered alongside a suite of tools to improve the operating profitability of the DAO in the short term. However, since these Assets belong to the DAO, the only proposed solution we envision is to have the DAO vote on POL farming MIN-ADA through a Proposal, and decide between a series of different options.

4.2 Launchbowl POL

Following the success of the Meteor LBE, Minswap Labs also offers this service for projects to launch new tokens on the DEX through the Minswap Launchbowl. As part of facilitating this service, a Fee in the LP Tokens generated in the Event is taken for the Minswap DAO Treasury. These LP Tokens generate both Trading Fees and Farming rewards.

The Minswap Launchbowl allows the Minswap DAO to diversify its POL and acquire stake in promising Cardano projects. There were two successful LBE launches which helped bootstrap liquidity for projects and the Minswap DAO to acquire INDY/ADA and MCOS/ADA LP Tokens. However, since then, no new LBEs have been conducted. Minswap Labs is currently working on improvements on the LBE to make the process smoother and easier.

The second Launchbowl type of initiative, the Collective Zap-in did not seem to have a similar level of success. Our hypothesis is this is due to mainly 4 reasons:

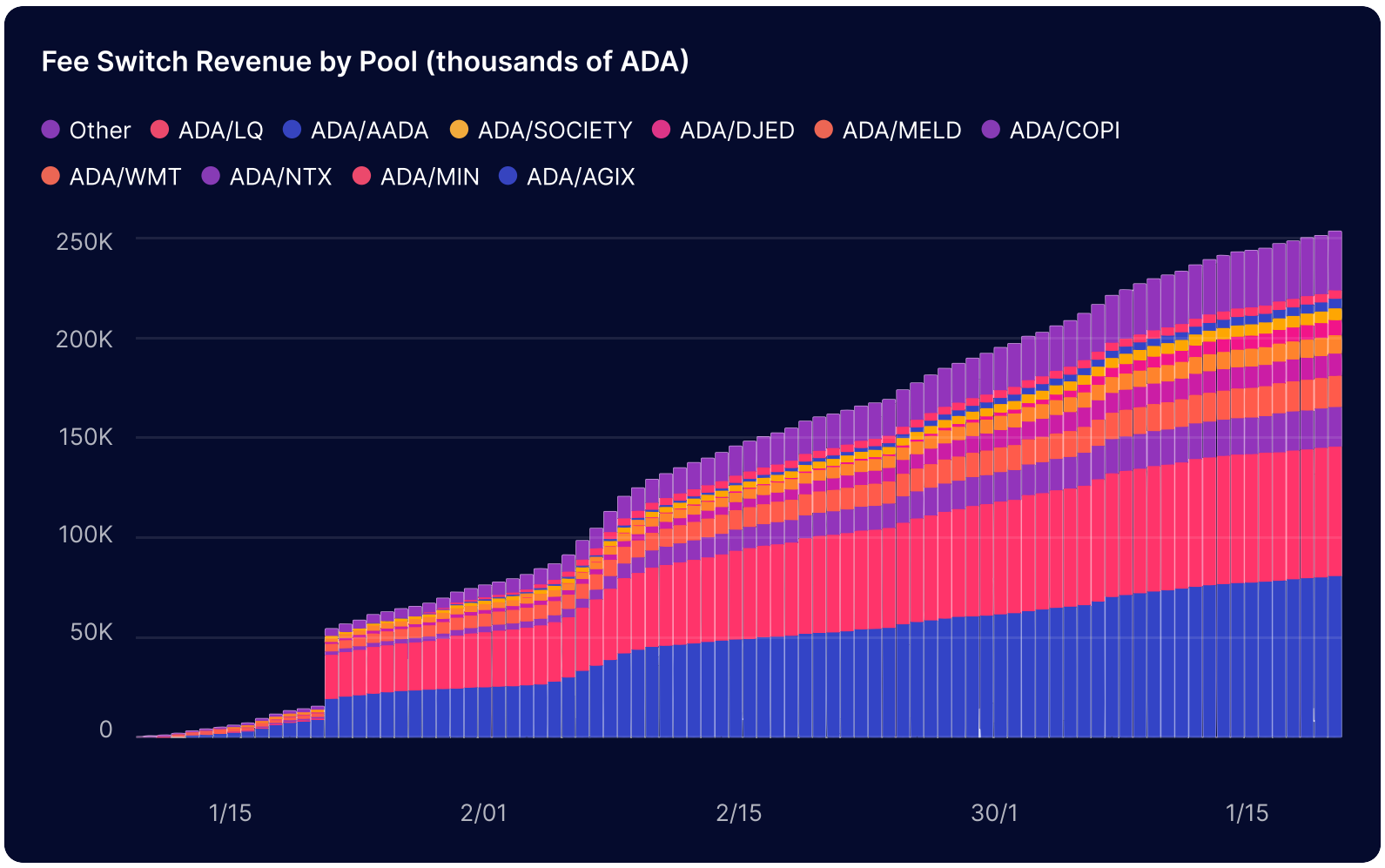
- Low product market fit of launching new tokens in current bear market conditions.
- The CZI is hard to understand for those who are not advanced DeFi users
- Misaligned economic incentives, as users are funding a big Liquidity Pool from the get-go there is an incentive for insiders of the project to sell their tokens immediately.
- Price volatility during and after the CZI (and price heavily affecting the outcome of the CZI).

While launching CZI campaigns would benefit the growth in Volume, TVL and POL for Minswap DEX, given the reasons above it seems unlikely any are conducted in the short-term. The Working Group, Minswap Labs and the wider Minswap community ought to work on a way to improve the CZI so that it addresses the concerns above.

4.3 Fee Switch POL

The Fee Switch refers to redirecting 0.05% of the 0.3% Liquidity Provider Fee that swappers pay to increase the DAO Treasury's POL and specifically to increase the MIN/ADA Liquidity. It was activated following a DAO vote. You can read more about the concrete mechanism in the Minswap Docs.

The chart below shows the contributions to the Fee Switch per Pool:



As of June 4th 2023, 650k ADA worth of MIN and ADA have been accumulated through the Fee Switch. This is incredibly important towards the health of the MIN/ADA Pair and thus the DEX.

That being said, when it comes to the DAO Treasury management strategy, the WG believes additional value could be derived from diversifying the treasury. For example, this could be done by redirecting a percentage of Fee Switch income towards other Pairs or assets other than MIN/ADA. Given Cardano DeFi is currently in a nascent state, the most sensible strategy might be to start by directing it towards stablecoins at first.

5 Conclusion

Below are a handful of conclusions, next steps, and further research topics. However, it is important to recognize that the following conclusions are based on a first pass at the analysis of this pool. What follows is an attempt to create general conclusions and suggestions from the analysis provided here.

Given the current state of the Cardano DeFi ecosystem, we conclude Minswap's **MIN Emissions are too high**, even at the low end of the Minimax phase range. We believe that continuing with dynamic emissions makes sense, even though during the Minimax phase emissions only decreased, there may be times in the future where emissions will need to increase. However, we propose the community decide on a new minimum and maximum range for the dynamic emissions.

Considering emissions are designed to attract TVL, how should the community try to decide on a new range of emission levels? No model will be able to tell us what to do. Models are inherently backward looking anyways, and **TVL can be sticky**. If TVL moves from Minswap to another DEX, it will likely take much more MIN Emissions to bring that TVL back relative to the MIN emissions needed to keep the TVL at Minswap, meaning it will cost more to attract TVL away from competing DEXs relative to keeping the existing TVL on Minswap. Thus, it is important to ensure that emissions are never so low to cause Minswap to lose liquidity.

It is important to remember that **MIN Emissions are important for overall TVL**. When measuring MIN Emissions in ADA (convert the MIN to ADA), we see emissions and TVL are highly positively correlated. It is less obvious for volume, but given higher TVL leads to less slippage, we can assume volume is indirectly affected by emissions as well. We currently do not directly affect or incentivize volume. **Volume is organic**, all we can hope for is capturing the majority of the volume across the ecosystem. The best way to do that is to offer the best 'net of fees' price. This usually means having the lowest slippage in a CPMM DEX, which is dictated by deep liquidity/high TVL.

A successful Emissions management program needs to be extremely adaptive and dynamic. It should include **both the DAO to establish a framework and limits, and an expert group** (such as this Working Group and possibly more members) to conduct constant analysis and manage the day to day. The Emissions working group should be responsible for analyzing the emissions every 2 weeks for the overall protocol. As the ecosystem evolves, we will need to increase emissions at some point in time. It should be a discretionary decision with quantitative inputs.

While this report has identified the impost of current tokenomic structure, it should serve as a springboard to work on optimizing tokenomics to drive revenue through higher volume and deeper liquidity.

Next Steps

1. We believe that an **on-chain vote** should occur **to lower the lower bound of emissions**. We can propose a couple different options and let MIN holders vote on which makes the most sense to them.
2. We should create a **working Group** specifically responsible for **Dynamic Emissions Mgmt**. This working group should be compensated. It should have at least 1 Minswap Labs team member involved, 3-4 KFC at a minimum, and a handful of non-KFC community members will be welcomed as well.
3. The working group should do a thorough review of the **minimum and maximum ranges for each farming pool**. We believe that ADA/MIN may be receiving too many emissions at the moment
    a. A good secondary solution may be to have the Minswap DAO Farm some percentage of the ADA/MIN POL.

Further Research

1. We should **review pairs that have high volume across Cardano DEXs** and see what % of that volume Minswap is capturing. If it is not a high %, we should review why that is. Is there not enough TVL in the Minswap liquidity pool, do we need to further incentivize that pair?
2. We should continue to **refine our definition of profitability** and work towards an eventual sustainable view on profitability.
3. How should we further **diversify the POA/POL**? Right now all fee revenue is being reinvested in ADA/MIN LP. But it might make sense to reinvest some of the fee revenue into systemically important pools (maybe stablecoins?)
4. This study only considers MIN Emissions management as a task to be conducted by Minswap Labs/Working Group to minimize cost. However, further factors, economic actors and incentives could be introduced . What role can the **MIN token** have in the Emissions Management process?
5. Future Reports could also analyze the **composition of Minswap LPs** (e.g. how much % is owned by how much % of the LPs)

Appendix I - Detailed Model And Metric Explanations

When we are viewing the costs of emissions relative to the benefits of each Liquidity Pool that Minswap incentivizes, we will try to do this more directly.
We will graph the following metrics

1. Emissions / Volume - this shows the daily emissions per pool (in MIN) relative to the daily volume (in ADA). This metric shows the efficiency of each MIN emitted. The lower this number, the less MIN was needed to incentivize volume. If Volume is growing and this metric is shrinking, we can say MIN Emissions are increasingly efficient for that pool.
2. Emissions / TVL - this shows the daily emissions per pool (in MIN) relative to that day's TVL(in ADA). This metric shows the efficiency of each MIN emitted. The lower this number, the less MIN is used to incentivize each until of TVL. If TVL is growing and this metric is shrinking, we can say MIN Emissions are increasingly efficient for that pool.
3. TVL in ADA versus Emissions in ADA - this graph would show both total TVL per day (in ADA) versus the MIN Emitted as Incentive, but converted into its ADA value. This represents an ‘apples to apples’ comparison of the cost/benefit, and helps us see the correlation between the two.
4. Volume in ADA versus Emissions in ADA - this graph would show both total daily Volume per day (in ADA) versus the MIN Emitted as Incentive, but converted into its ADA value. This represents an ‘apples to apples’ comparison of the cost/benefit, and helps us see the correlation between the two.
5. The correlation between TVL in ADA, Volume in ADA, and Emissions in ADA

We also ran through some different statistical models attempting to extract how dependent both TVL and Volume are on emissions. We did this through different Linear Regression Models, from 1 simply regressing emissions on either TVL or Volume, to models attempting to control for different covariates like price and interaction effects. Finally, we also looked at an ARIMA model, with the view that TVL (and maybe volume) could be sticky and exhibit autocorrelation (TVL today depends on TVL yesterday). So an ARIMA model will help control for that autocorrelation and allow you to include exogenous variables as well.

TVL Based Regressions

```
M1 = TVL ~ Emissions Points (emissions points is the % of overall emissions given to a specific farm for the biweekly
period)
M2 = TVL ~ Emissions Points + Price
M3 = TVL ~ Emissions Points + Price + Volume
M4 = TVL ~ Emissions Points + Price + Volume + Interaction (Volume and Price)
M5 = TVL ~ Emissions Points + Price + Volume + Interaction (Volume and Price) + Interaction (Volume and Emissions)
M6 = TVL ~ Emissions Points + Price + Volume + Interaction (Volume and Price) + Interaction (Volume and Emissions) + Total
Protocol Emissions (in MIN)
ARIMA TVL ~ AutoRegressive Model + all terms above
```

Volume Based Regressions

```
M1 = Volume~ Emissions Points (emissions points is the % of overall emissions given to a specific farm for the biweekly
period)
M2 = Volume~ Emissions Points + Price
M3 = Volume~ Emissions Points + Price + TVL
M4 = Volume~ Emissions Points + Price + TVL + Interaction (TVL  and Price)
M5 = Volume~ Emissions Points + Price + TVL + Interaction (TVL  and Price) + Interaction (TVL  and Emissions)
M6 = Volume~ Emissions Points + Price + TVL + Interaction (TVL  and Price) + Interaction (TVL  and Emissions) + Total
Protocol Emissions (in MIN)
ARIMA Volume~ AutoRegressive Model + all terms above
```

Appendix II - Other Interesting Regression Models

TVL Dependent on Emissions Points

	AGIX	MIN	WMT	MELD	LQ	AADA	COPI	CNETA	PAVIA	DJED	INDY	NTX	SOCIETY
m1	m1	m1	m1	m1	m1	m1	m1	m1	m1	m1	m1	m1	m1
adjR2	0.87	0.32	0.47	0.07	0.039	0.00	0.56	0.34	0.96	0.19	0.33	0.90	0.00
pvals_Emissions(ADA)	0.00	0.00	0.84	0.00	0.00	0.47	0.00	0.00	0.00	0.02	0.00	0.00	0.32
params_Emissions(ADA)	11,502.13	19,702.61	-8,280.30	5,733.66	22,946.71	319.86	4,364.86	2,867.69	8,027.72	9,026.39	2,008.51	24,756.82	517.59
Start Date	8/13/2022	8/13/2022	8/13/2022	8/13/2022	8/13/2022	8/13/2022	8/13/2022	8/13/2022	8/13/2022	3/9/2023	11/23/2022	8/13/2022	8/13/2022

TVL Dependent on Emissions (in ADA) and Price and Volume

	AGIX	MIN	WMT	MELD	LQ	AADA	COPI	CNETA	PAVIA	DJED	INDY	NTX	SOCIETY
m3	m3	m3	m3	m3	m3	m3	m3	m3	m3	m3	m3	m3	m3
adjR2	0.98	0.96	0.28	0.46	0.90	0.76	0.96	0.95	0.97	0.21	0.90	0.97	0.94
pvals_Emissions(ADA)	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.32	0.00	0.00
pvals_Price	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00	0.00
pvals_Volume	0.02	0.14	0.27	0.10	0.00	0.94	0.00	0.00	0.00	0.12	0.00	0.00	0.01
pvals_const	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.44	0.00	0.00	0.00
params_Emissions(ADA)	1,385.02	-443.11	113.36	1,373.49	844.99	763.79	-137.15	788.14	834.76	2,114.17	77.64	2,215.61	412.42
params_Price	2,243,320.65	654,458,943.40	8,408,196.86	-32,654,100.71	172,264.11	768,996.17	11,906,358.09	25,305,058.45	78,386,366.22	385,886.35	172,792.35	5,973,118.57	11,701,317.96
params_Volume	0.07	-0.50	0.32	-1.01	-0.90	0.01	-0.09	0.53	-0.75	0.29	0.44	0.12	0.22
Start Date	8/13/2022	8/13/2022	8/13/2022	8/13/2022	8/13/2022	8/13/2022	8/13/2022	8/13/2022	8/13/2022	3/9/2023	11/23/2022	8/13/2022	8/13/2022

TVL Dependent on Emissions Points and Price and Volume and Price/Volume Interaction and Volume/Emissions Interaction and Total Protocol Emissions in MIN

	AGIX	MIN	WMT	MELD	LQ	AADA	COPI	CNETA	PAVIA	DJED	INDY	NTX	SOCIETY
m6	m6	m6	m6	m6	m6	m6	m6	m6	m6	m6	m6	m6	m6
adjR2	0.95	0.98	0.53	0.17	0.93	0.76	0.97	0.97	0.99	0.17	0.90	0.96	0.97
pvals_Emissions(Points)	0.38	0.00	0.00	0.64	0.00	0.17	0.00	0.00	0.00	0.30	0.38	0.00	0.00
pvals_Price	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.62	0.00	0.00	0.00
pvals_Volume	0.02	0.00	0.01	0.52	0.08	0.03	0.00	0.00	0.00	0.79	0.03	0.00	0.00
pvals_Volume*Price	0.00	0.00	0.30	0.76	0.01	0.00	0.00	0.00	0.00	0.78	0.02	0.00	0.00
pvals_Volume*Emissions	0.00	0.00	0.02	0.58	0.06	0.37	0.33	0.11	0.00	0.93	0.44	0.04	0.00
pvals_Total Emissions (MIN)	0.80	0.25	0.01	0.60	0.00	0.00	0.00	0.00	0.00	0.72	0.00	0.00	0.00
params_Emissions(Points)	-733.48	8,971.59	-8,350.75	1,343.03	-5,126.54	-573.53	-524.22	1,961.60	3,087.79	16,856.44	168.75	14,293.85	1,019.38
params_Price	7,809,773.77	432,615,862.40	4,012,602.19	-90,187,172.90	140,011.11	2,173,062.05	13,996,769.12	35,978,249.00	62,730,620.93	417,768.15	186,054.14	6,514,546.09	12,764,126.96
params_Volume	-0.27	84.36	10.52	-6.98	-7.12	3.45	0.48	2.48	6.20	1.39	1.06	0.64	1.09
params_Volume*Price	-1.28	46.85	-3.05	28.31	-0.03	-1.71	-7.23	-86.41	-247.88	-0.32	-0.15	-4.44	-4.91
params_Volume*Emissions	0.00	-0.01	-0.01	0.01	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00
params_Total Emissions (MIN)	0.12	1.67	2.54	0.70	6.29	-4.74	-0.50	0.68	1.19	-1.76	1.59	-0.31	-0.45
Start Date	8/13/2022	8/13/2022	8/13/2022	8/13/2022	8/13/2022	8/13/2022	8/13/2022	8/13/2022	8/13/2022	3/9/2023	11/23/2022	8/13/2022	8/13/2022

ARIMA (1, 1, 0) Model with Emissions Points and Total Protocol Emissions in MIN

	AGIX	MIN	WMT	MELD	LQ	AADA	COPI	CNETA	PAVIA	DJED	INDY	NTX	SOCIETY
arima	arima	arima	arima	arima	arima	arima	arima	arima	arima	arima	arima	arima	arima
adjR2	0.72	0.64	0.29	0.06	0.08	0.01	0.47	0.00	0.93	0.23	0.34	0.75	0.18
pvals_Emissions(Points)	0.42	0.97	0.92	0.99	0.82	0.00	0.68	0.72	0.83	0.98	0.01	0.00	0.29
pvals_Total Protocol Emissions (MIN)	0.45	0.98	0.69	0.99	0.95	0.05	0.99	0.93	0.30	1.00	1.00	0.79	0.40
pvals_ar.L1	0.00	0.49	0.99	0.97	0.78	0.72	1.00	0.77	0.79	0.24	1.00	0.01	0.00
pvals_sigma2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
params_Emissions(Points)	917.98	293.57	180.23	209.34	-468.69	2,505.55	-334.36	-162.46	292.42	1,754.77	-835.25	2,878.50	780.84
params_Total Protocol Emissions (MIN)	0.75	0.68	-0.78	0.26	0.07	-0.95	0.05	0.04	0.34	2.01	-413.14	0.22	0.40
params_ar.L1	0.19	0.02	0.00	-0.01	0.01	0.01	0.00	0.01	-0.01	-0.33	0.00	0.12	0.14
params_sigma2	50,500,000,000.00	466,000,000,000.00	75,000,000,000.00	202,000,000,000.00	25,300,000,000.00	26,800,000,000.00	3,590,000,000.00	2,240,000,000.00	3,080,000,000.00	46,500,000,000.00	4,590,000,000.00	8,770,000,000.00	11,200,000,000.00
Start Date	8/13/2022	8/13/2022	8/13/2022	8/13/2022	8/13/2022	8/13/2022	8/13/2022	8/13/2022	8/13/2022	3/9/2023	11/23/2022	8/13/2022	8/13/2022

Volume Dependent on Emissions Points and Price and TVL and Price/TVL Interaction and TVL /Emissions Interaction and Total Protocol Emissions in MIN

	AGIX	MIN	WMT	MELD	LQ	AADA	COPI	CNETA	PAVIA	DJED	INDY	NTX	SOCIETY
m6	m6	m6	m6	m6	m6	m6	m6	m6	m6	m6	m6	m6	m6
adjR2	0.53	0.49	0.28	0.16	0.17	0.47	0.36	0.33	0.10	0.33	0.38	0.42	0.63
pvals_Emissions(Points)	0.84	0.97	0.42	0.01	0.95	0.00	0.00	0.17	0.30	0.80	0.08	0.36	0.00
pvals_Price	0.00	0.00	0.14	0.57	0.00	0.00	0.00	0.38	0.38	0.71	0.00	0.00	0.40
pvals_TVL	0.00	0.38	0.88	0.01	0.83	0.00	0.21	0.00	0.41	0.77	0.04	0.03	0.00
pvals_TVL*Price	0.21	0.00	0.28	0.90	0.84	0.00	0.00	0.10	0.97	0.62	0.00	0.04	0.86
pvals_TVL*Emissions	0.00	0.52	0.18	0.00	0.42	0.00	0.01	0.03	0.37	0.66	0.06	0.90	0.00
pvals_Total Protocol Emissions (MIN)	0.44	0.00	0.00	0.44	0.00	0.20	0.26	0.80	0.14	0.79	0.16	0.46	0.26
params_Emissions(Points)	-266.43	-73.66	-2,154.79	2,732.75	-96.31	3,779.44	-13,676.53	417.30	434.12	14,415.96	2,138.82	-4,701.51	3,788.79
params_Price	3,870,695.23	65,173,057.04	5,089,108.57	2,588,795.87	22,872.36	857,750.42	27,730,748.36	3,075,825.03	5,488,758.34	-1,655,354.29	-109,449.56	7,676,760.59	974,571.64
params_TVL	1.13	0.35	-0.05	0.27	-0.04	0.72	-0.30	0.24	-0.05	-3.29	0.43	0.37	0.23
params_TVL*Price	-0.15	-1.09	-0.37	-0.09	0.00	-0.13	-7.78	-3.13	0.07	1.63	0.04	-2.03	-0.04
params_TVL*Emissions	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	-0.02	0.00	0.00	0.00
params_Total Protocol Emissions (MIN)	0.46	-2.51	-0.92	0.09	0.87	-0.25	-0.42	-0.02	0.18	6.07	-0.95	0.14	0.13
Start Date	8/13/2022	8/13/2022	8/13/2022	8/13/2022	8/13/2022	8/13/2022	8/13/2022	8/13/2022	8/13/2022	3/9/2023	11/23/2022	8/13/2022	8/13/2022

Volume Dependent on Emissions in ADA and Price and TVL and Price/TVL Interaction and TVL /Emissions Interaction and Total Protocol Emissions in MIN

	AGIX	MIN	WMT	MELD	LQ	AADA	COPI	CNETA	PAVIA	DJED	INDY	NTX	SOCIETY
m6	m6	m6	m6	m6	m6	m6	m6	m6	m6	m6	m6	m6	m6
adjR2	0.54	0.50	0.24	0.11	0.17	0.42	0.37	0.35	0.10	0.40	0.37	0.45	0.62
pvals_Emissions(Points)	0.00	0.00	0.32	0.69	0.73	0.41	0.00	0.42	0.26	0.84	0.09	0.01	0.01
pvals_Price	0.00	0.00	0.01	0.54	0.10	0.00	0.00	0.75	0.03	0.72	0.00	0.00	0.62
pvals_Volume	0.00	0.00	0.02	0.89	0.18	0.36	0.88	0.00	0.74	0.78	0.05	0.00	0.00
pvals_Volume*Price	0.00	0.05	0.03	0.66	0.48	0.29	0.00	0.86	0.41	0.70	0.00	0.03	0.81
pvals_Volume*Emissions	0.12	0.17	0.30	0.94	0.32	0.51	0.00	0.00	0.66	0.92	0.06	0.17	0.00
pvals_Total Protocol Emissions (MIN)	0.34	0.00	0.08	0.00	0.07	0.00	0.00	0.01	0.81	0.72	0.14	0.08	0.88
params_Emissions(Points)	-1,670.32	114.94	244.26	38.87	57.85	-106.89	-5,695.28	63.01	95.58	-1,516.52	1,172.21	-2,317.41	826.77
params_Price	5,148,960.56	68,190.60	8,097,966.21	4,930,762.85	15,776.16	670,436.38	40,309,922.57	1,148,734.68	10,533,012.76	-1,518,736.58	-112,957.10	7,023,818.63	588,001.85
params_Volume	0.64	-0.07	0.38	0.01	-0.16	-0.06	0.04	0.17	-0.02	-2.97	0.73	0.48	0.20
params_Volume*Price	-0.43	-0.55	-0.67	-0.56	0.00	-0.05	-13.58	-0.38	-1.57	1.22	0.04	-1.86	0.06
params_Volume*Emissions	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
params_Total Protocol Emissions (MIN)	-0.47	-4.13	-0.50	-0.39	2.00	-0.76	-1.33	0.45	0.04	7.87	-1.76	0.32	0.02
Start Date	8/13/2022	8/13/2022	8/13/2022	8/13/2022	8/13/2022	8/13/2022	8/13/2022	8/13/2022	8/13/2022	3/9/2023	11/23/2022	8/13/2022	8/13/2022

Minswap

Thank you for reading