

Secret Skellies Society

NEAR's First Deflationary Ecosystem.

The SSS Team

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Abstract

The **Secret Skellies Society (SSS)** plans to become the keystone non-fungible token project on the NEAR ecosystem, effectively creating a levered bet on the infrastructure layer. The NEAR layer serves as a fundamental alternative to other Layer-1 technologies like Ethereum or Solana, and the SSS team is excited by its low fees, quick transaction times, and immense opportunity set. Due to how relatively new the ecosystem still is, the SSS project can benefit on the expected rise of NEAR to become one of the leading projects.

SSS understands that the long-term expectation of NFTs is one that may represent something more than art. While projects like CryptoPunks on Ethereum paved the way for digital art, projects like the Bored Ape Yacht Club and CyberKongz are changing the way people view NFTs. No longer are they simply pretty images for a profile – NFTs have instead become a passport into gated communities with real utility and opportunities. SSS immediately initialized utility for its community with their Utopia launchpad, alpha channels, and whitelist partnerships, and has continued with the Grimm collection. The project will then move onto the UTO token, which elicits more chances to add value. While the Skellies are today just a deflationary NFT project with a launchpad service, the collection tomorrow will encompass an entire ecosystem. Through that growth, SSS will achieve widespread success and be able to stamp its name across NEAR – becoming the go-to project on the rapidly growing ecosystem.

Below, this paper establishes the SSS backstory. The paper will then go into detail about the current phase of development, before expanding on the opportunity set with the UTO token. The future is a bright cycle of sourcing, planning, and executing. Note: please do your own research – the following is not financial advice.

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I Introduction

The Secret Skellies Society is based on the Story of Skullingham, which was once a place of wonder, with ivory towers reaching the heavens and marbled roads as far as the eye could see...

The Skellies minted on 24 January, 2022, officially establishing the SSS community. Since then, SSS announced the UTO launchpad to on-board talented creators onto the NEAR blockchain with ease and to provide value to holders. SSS has now grown its ecosystem with 777 Grimm NFTs.

The SSS aims to be the one of the strongest communities on the NEAR blockchain. They seek to empower members with knowledge about not only the Near blockchain, but also about cryptocurrency and the future of Web3 as a whole. As the NEAR ecosystem develops, the team is open to the community's suggestions on where to take the project. WAGMI Skellies.

I.1 Secret Skellies Society Backstory

All Skellies pulled their weight and contributed to the betterment of the society as a whole. Everything was going well until that fateful night... Grimm plotted in his lair, deciding now was the time to act. Instead of ferrying the Skellies across river Skell and into the afterlife, Grimm began to take them back to his dungeon where he would tinker with the Skellies in an attempt to create more reapers. The Skellies may have never known something was afoot — if Grimm's greed stayed separate from his power. As he attained more power, the more he thirsted for it. Grimm started snatching perfectly healthy Skellies from the streets of Skullingham, and was obsessed with the thought of a reaper army. The Skellies took notice of their dwindling numbers, but instead of thinking an outside force was working against them, they turned on each other; splitting into the creeds we have today.

I.2 Skellies vs. Grimm

The original Skellies collection has now been joined by 777 Grimm NFTs. Skellie NFT holders were automatically whitelisted, and the utility was effectively immediate. Not only will these NFTs play a role in generating the SSS's native token (to be discussed further), but they will also create a situation where Grimm NFTs are necessary in creating its offspring Hybrid NFT (also to be discussed). The Skellie NFTs follow a deflationary model, meaning that the supply will continually decrease as a portion of marketplace royalties go to burning the NFTs. Systematically, both characteristics will impact SSS tokenomics, the next layer of utility. Note: the UTO token is first and foremost a utility token. The price of the token will be initially set by the liquidity pool, before being decided by the market. At the end of the day:

$$\boxed{1 \text{ UTO} = 1 \text{ UTO}}$$

Below, the paper will discuss the tokenomics.

2 UTO Tokenomics

The maximum supply of UTO is 30,000,000, with the bulk distributed to the public through the collections and liquidity pool.

Max Token Supply Distribution		
Category	Amount	Proportion
Public	25,000,000	83.3%
Team	3,000,000	10.0%
LP Incentives	1,700,000	5.7%
Marketing	300,000	1.0%
Total Supply	30,000,000	100.0%

Figure 1: Complete UTO Token Distribution

The key takeaway is that the most important factor in the maximum UTO supply is the amount that the Skellie or Grimm NFTs can produce. The LP Incentives allocation will either be used to support additional liquidity or be burned. Based on research of other projects, the proportion provided to the team is on the conservative end. Furthermore, the allocation to the team is vested exponentially over four years. Only 6% is unlocked by the end of the first year, and just 44% unlocked by the start of the third. This ensures that the incentives of the team are properly aligned with community participants.

2.1 Skellie NFT Emissions

The initial decision for the Skellie NFT is 10 UTO per unit. The number was chosen as a baseline for the rest of the ecosystem, meaning that afterwards it became possible to mathematically extrapolate the total supply that the NFTs would create. This paper first introduces the key system variables that will influence token functionality:

Σ_X Total UTO for the X th Collection	Σ Total UTO produced
d_X Days for the X th Collection	π Daily UTO produced
y_X Years for the X th Collection	γ UTO token price
n_X Supply for the X th Collection	σ UTO token volatility

Specifically, note the key tenets in the Skellies NFT system. Each Skellie NFT will follow these three basic tenets:

1. 10 UTO will be generated every day if unlisted.

2. UTO will be generated for 365 days each year.
3. UTO will be generated for 4 years.

As a result, when using the 777 Skellies supply, the maximum token generation Σ_S is:

$$\begin{aligned}
 \Sigma_S &= n_S \cdot d_S \cdot y_S \cdot \pi_S \\
 &= 777 \cdot 365 \cdot 4 \cdot 10 \\
 &= \boxed{11,344,200 \text{ UTO}}
 \end{aligned}$$

In reality however, the Skellies burn functionality (where royalties from marketplace deals are used to purchase and remove Skellies from the market) means that the total supply of UTO created over the long-run may actually be far lower. Thus, not only will the burning of Skellie NFTs benefit the Skellie ecosystem through a lower supply and slight increase in artificial demand, but it will also decrease the UTO released, meaning (in aggregate) a more valuable utility token.

Notably, while the token has no real financial merit and should not be considered a security, it can have value in the SSS ecosystem. In particular, because these tokens will have utility cases (as explained in a later section), then for every UTO token burned, the remaining ones will be systematically more valuable.

The increase in Skellie UTO tokens over time can be better understood when modeled out, as in theory (without burning) the circulating supply would grow at a linear rate. Consider the traditional linear function:

$$y = mx + b$$

In this case, the starting b value is equal to 0. Thus, the formula for each individual NFT can be:

$$y = mx$$

The y and x can be replaced with $\Sigma_{S,d}$ and t time in days, respectively. Thus, m can be replaced for the daily production amount, meaning that each day:

$$\Sigma_{S,d} = \pi_S \cdot d_S$$

Of course, the daily UTO produced can be replaced with the numerical value, where:

$$\Sigma_{S,d} = 10 \cdot d_S$$

Hence, the daily total can be expanded over time, which means that the cumulative amount for the single NFT is:

$$\Sigma_S = 10 \cdot d_S \cdot y_S$$

As a result, the increase for the entire collection is:

$$\Sigma_S = 10 \cdot n_S \cdot d_S \cdot y_S$$

This final formula gives a linear graphical result, based on the values used for the day and year. But that being said, in practice the increase would be slightly different. Notably, the number of NFTs slowly fall over time, and that rate of burn can actually be modeled using probability. Assuming that the rate of burn can be generally extrapolated by the historical rate, a binomial random variable can help establish the speed of future burn. Thus, after using a 25% probability of burn each day, then the outcome can also be modeled in Figure 2. Notably, the graph demonstrates a clear distinction

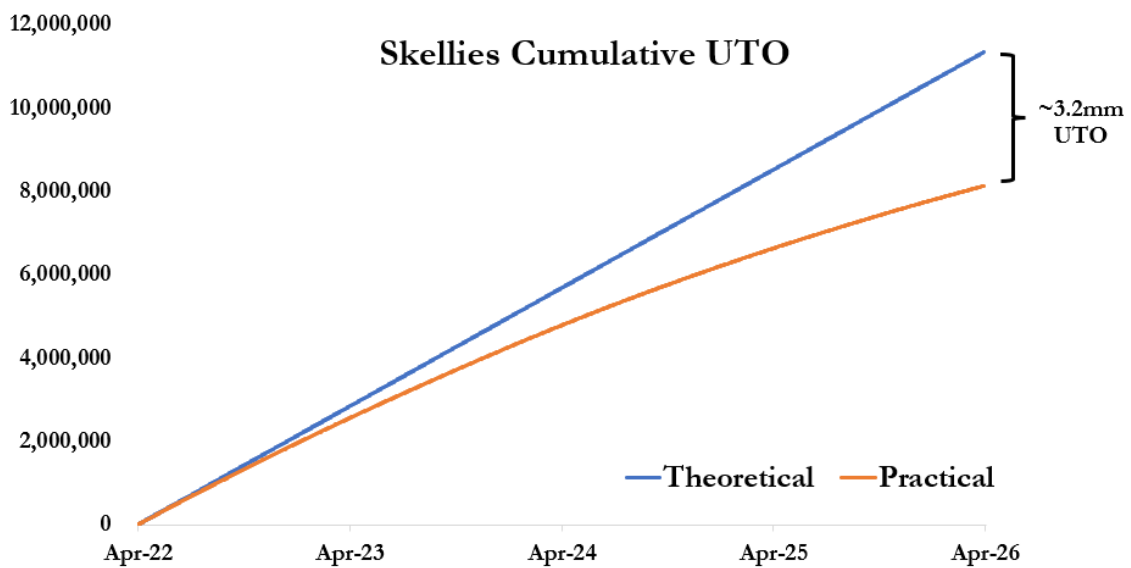


Figure 2: Skellie UTO Generation Over Time

between the theoretical and the practical line, which is also important in understanding the impact of token creation decisions. The result of the burning means that by the end of the fourth year, the projected difference is over three million tokens. The below Figure 3 chart demonstrates the benefits that this significant decrease can have on supply. Thus, the practical amount is only ~72% of the theoretical amount, resulting in the overall total diluted supply to shrink. With that being said though, the Skellies are not the only ones in the SSS ecosystem that can produce tokens. The Grimm NFT collection has that ability as well.

2.2 Grimm NFT Emissions

While the Grimm NFTs will also be able to earn UTO tokens, Skellies are still intended to remain at the top of the SSS food chain. There is need to find the right relative value to ensure that Skellies

SSS Theoretical vs. Practical Total Supply		
Analysis	Amount	Percentage
Theoretical	11 mm	100.0%
Practical	8 mm	71.7%
Difference	3 mm	-28.3%

Figure 3: Difference Between Theoretical & Practical

are still the most important NFT class in the SSS ecosystem, without harming the potential of the Grimm NFTs. The utility value of Grimm NFTs can then be defined as:

$$0 \leq \text{Grimm NFT} \leq \text{Skellies NFT} \leq \infty$$

As a result, the team's decision is to go with:

$$\pi_G = 6 \text{ UTO} < \pi_S = 10 \text{ UTO}$$

Choosing a token emission rate too low would hamper the value of Grimm, and as will be discussed later on, gives little room for the subsequent Hybrid collection after. Like before, the tenets from the Skellies analysis can be applied. As a result, when using the maximum 777 Grimm supply, the total token generation Σ_G is:

$$\begin{aligned} \Sigma_G &= n_G \cdot d_G \cdot y_G \cdot \pi_G \\ &= 777 \cdot 365 \cdot 4 \cdot 6 \\ &= \boxed{6,806,520 \text{ UTO}} \end{aligned}$$

The number of tokens that the Grimm collection adds is theoretically roughly three-fifths of the impact that the Skellies collection has. The practical rate will also be similar, as the Grimm collection will also have the burn function. However, the lower utility value of the Grimm collection may mean an easier path to still gain access to the exclusive SSS ecosystem. This could result in a higher trade velocity, subsequently leading to a faster burn rate. The binomial random variable is set at a 40% likelihood of burning, resulting in the finalized model in Figure 4. Like before, the burn means that each circulating token becomes more valuable relative to the diluted count.

2.3 Combined Impact

Understanding the combined increase is incredibly important for analyzing Hybrid participation. Due to the work on the Skellies and Grimm NFT emissions, the total contribution to supply can be measured. By taking this step, understanding the emission rate for the Hybrid NFTs becomes easier.

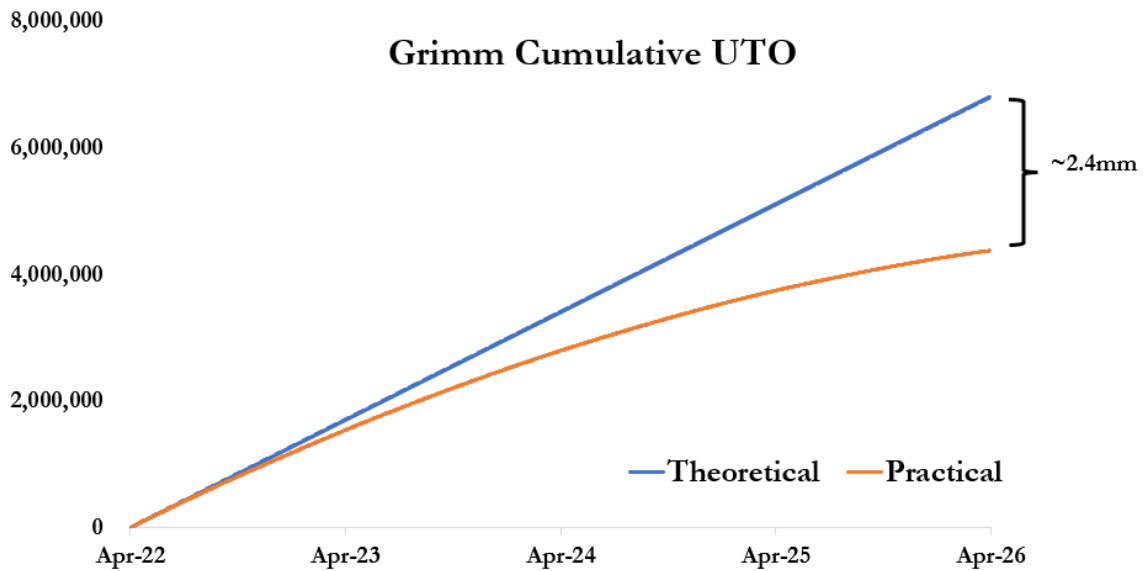


Figure 4: Grimm UTO Generation Over Time

The value of such an analysis means that the team can be far more prepared to establishing a strong token base. As will be demonstrated further below, the correct distribution of these tokens means that the risk of utility token volatility is far lower, and even helps to determine a beginning market liquidity pool. While this token is purely for utility within the SSS ecosystem, that does not mean the team should not be fully aware of the market conditions. The combined contribution by the Skellies and Grimm is thus modeled in Figure 5.

3 Hybrid Participation

The combination of a Skellie NFT with a Grimm NFT enables any holder to spend UTO to create a Hybrid spin-off. The official name and artwork of the Hybrid collection will be released at a later date, but the mechanics are described below.

3.1 Skellie + Grimm = Hybrid

Below are the specific characteristics of the Hybrid NFTs.

1. Supply: 1,554
2. UTO / Day: 3
3. Creation Cost: 1,554 UTO

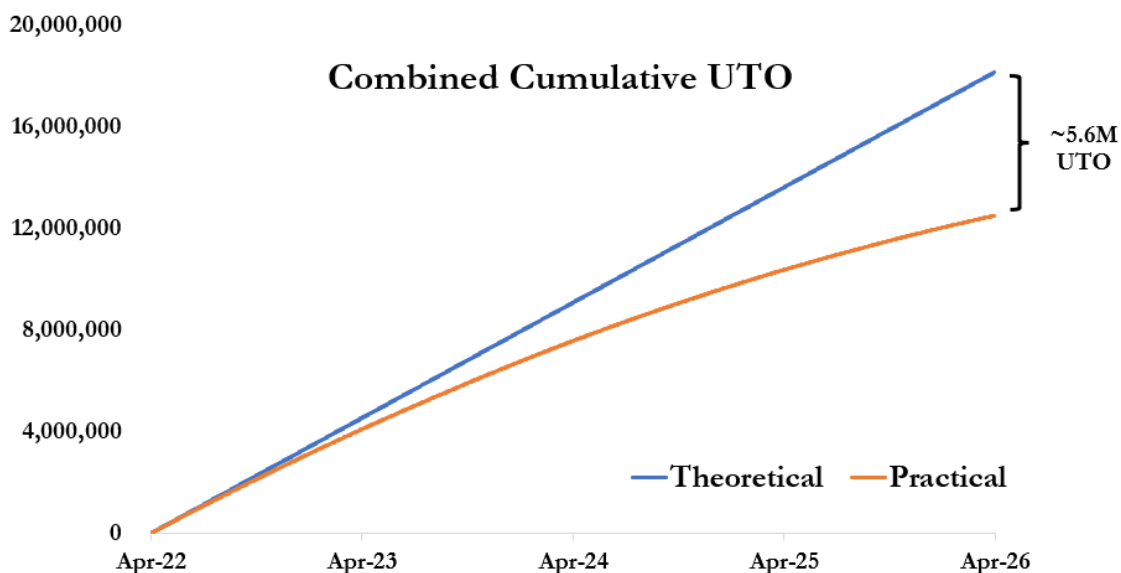


Figure 5: Total UTO Generation Over Time

4. Inflation: 5% / Month
5. Activation Period: 30 days

The Hybrid collection also has the capability to gain UTO. Note that the ability to generate Hybrids also follows a strictly calculated regimen. The balance of finding the right requirements to create Hybrids has immense impacts on the volatility of the project, token, and community. SSS aims to approach the Hybrid collection practically, and then mathematically verifies to ensure that the supply of UTO tokens and Hybrids are not overly restricting, nor overly dilutive. As the subsequent Generation collection, the Hybrid value should fall below that of the Skellies and Grimm. Note that the Hybrid collection has an inflation factor, where the UTO cost of creating another Hybrid increases by 5% every month. This means, the following Figure 6 represents the impact over time:

Calculating the number of UTO tokens a wallet owns is the key driver of Hybrid creation. Having more UTO allows the individual more flexibility in making Hybrids, as a large barrier occurs when participants are waiting to earn UTO from emissions.

3.2 Creation Rate

Initially, the daily wallet amount T with respect to time to be:

$$T_{w,t} = \pi_S \cdot n_S + \pi_G \cdot n_G + \pi_H \cdot n_H$$

Inflation Impact (in UTOPIA)			
<i>Apr-22</i>	1,554	<i>Oct-22</i>	2,083
<i>May-22</i>	1,632	<i>Nov-22</i>	2,187
<i>Jun-22</i>	1,713	<i>Dec-22</i>	2,296
<i>Jul-22</i>	1,799	<i>Jan-23</i>	2,411
<i>Aug-22</i>	1,889	<i>Feb-23</i>	2,531
<i>Sep-22</i>	1,983	<i>Mar-23</i>	2,658

Figure 6: UTO Cost Over Time

Note that while the model includes the practical amount, the mathematics here consider the maximum amount to simplify the process:

$$T_{w,1} = 10 \cdot 777 + 6 \cdot 777 + 0 \cdot 0 = 12,432$$

$$T_{w,2} = 10 \cdot 777 + 6 \cdot 777 + 0 \cdot 0 = 12,432$$

...

$$T_{w,d} = \pi_S \cdot n_S + \pi_G \cdot n_G + \pi_H \cdot n_H$$

...

$$T_{w,n} = 10 \cdot 777 + 6 \cdot 777 + 3 \cdot 1554 = \boxed{17,094}$$

The theoretical and practical models both assume that participants immediately use UTO when available, which can only be done when:

$$n_{w,S} \geq 0,$$

$$n_{w,G} \geq 0$$

Note that the time frames here also encounter periods where Hybrids cannot be activated. Consider the case with 777 Skellies and Grimm, where the cost $c_{min} = 1,554$, then:

$$\begin{aligned} n_H &= \frac{T_{w,n}}{c_{min}}, \text{ when } n_S \ \& \ n_G \geq 0 \\ &= \frac{12,432}{1,554}, \text{ when } n_S \ \& \ n_G \geq 0 \\ &= \boxed{8}, \text{ when } n_S \ \& \ n_G \geq 0 \end{aligned}$$

This means that during the early days within the entire ecosystem in the no-burn scenario, only 8 Hybrids can be created each day. In combination with the activation period of 30 days, the assumptions mean that the production of Hybrids can be slowed to over a period of multiple months, extending

the time for utility. When considering a single wallet, this also means that actual production will be broadly limited by the availability of the UTO token, as owning 5 Skellies and Grimm creates only 80 tokens a day. At that rate, it takes roughly 20 days to be able to burn and create a Hybrid, and another 30 days to actually have the Hybrid contributing to the UTO wallet increase.

3.3 Hybrid NFT Emissions

Having captured the amount of UTO produced every day, the cumulative amount can be determined. The circular function, where daily UTO creation is found before calculating the spend on making new Hybrids, means that the average rate at which the Hybrid population is made can be established. Due to lack of information on other potential scenarios, such as the case where participants purchase from the UTO pool or choose to save their tokens instead, gives us a practical version in Figure 7 that suggests that the Hybrid population will be fully created after around the seventh month. As shown by the really slight decrease in the Inactive line, the 5% inflation will have an impact. The completed daily UTO graph is also included below in Figure 8, to indicate the grad-

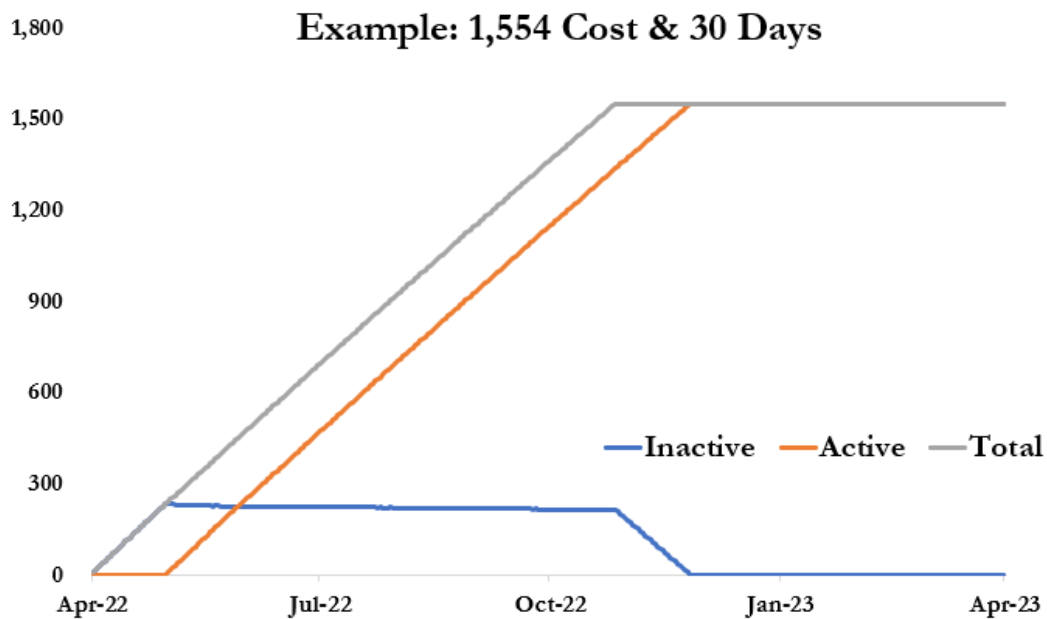


Figure 7: Hybrid Creation Over Time

ual increase in UTO creation that Hybrids can cause. Note that while this is a practical model for growth, in reality, it is incredibly unlikely that all UTO will be used to create Hybrids. It is unlikely that community participants would also immediately use their UTO rather than sell or save. From the graph, it becomes clear that Hybrids have a decent impact. Note that the model included above has the Skellie and Grimm burn, meaning that this model is still practical even when not accounting

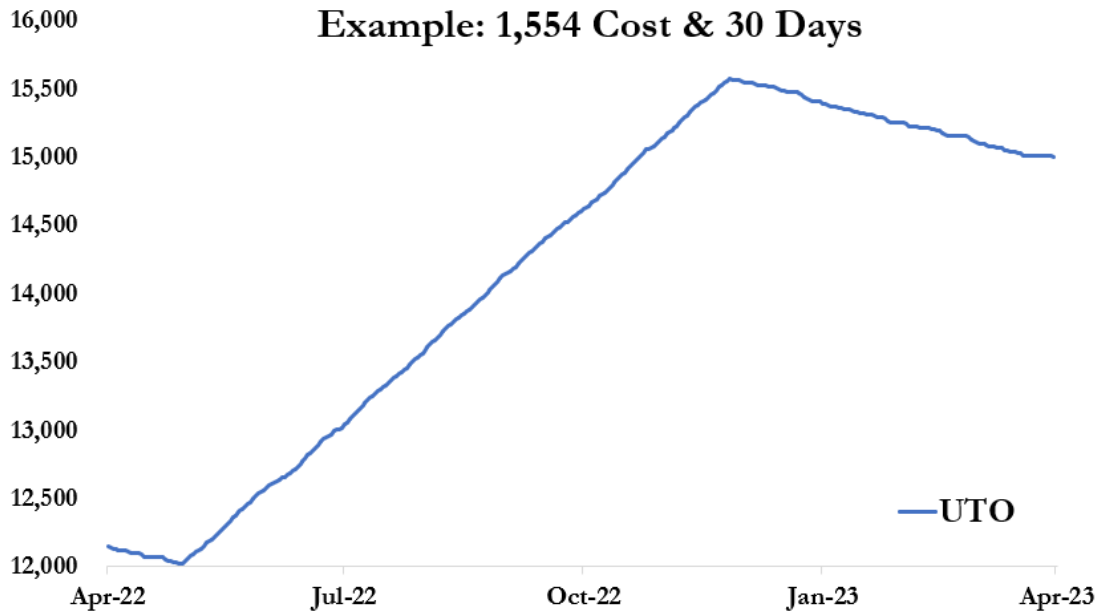


Figure 8: Daily Total UTO Creation Over Time

for the unpredictable decisions listed above. In that manner, it's clear that the ramp up of UTO production is driven by Hybrid creation, as it outpaces the decrease due to Skellies and Grimm burn. That being said, it's notable that within the year, the daily production starts to fall later on, highlighting how the burn can actually have an immense long-term effect. Furthermore, while the Hybrid collection will dilute the supply of UTO over time, in reality, the collection release also helps reduce it. Specifically, each of the Hybrid NFTs over its lifetime will create:

$$\begin{aligned}
 \Sigma_H &= d_H \cdot y_H \cdot \pi_H \\
 &= 365 \cdot 4 \cdot 3 \\
 &= \boxed{4,380 \text{ UTO}}
 \end{aligned}$$

It still requires 1,554 UTO (or more due to inflation) to actually create each Hybrid NFT. Thus, while the collection is will cause net dilution, in reality the difference will be far lower than expected.

4 Liquidity Pool & Use Cases

The last remaining section refers to the decisions on the liquidity pool, a market making factor that influences volatility for the token holders. Again, the token is not intended to be a security, and should only serve as utility in the SSS ecosystem. While an initial price will be set, owning such a token will not lead to additional royalties, and there should be no real expectations of profits from holding and receiving utility.

4.1 Initial Liquidity

Understandably, the math that will be demonstrated serves to help community members understand the functionality of a liquidity pool in an automated market maker. This is NOT the functionality of an order book. While order books can be a better option, automated market makers (AMMs) like Uniswap & Ref Finance have demonstrated significant success in the pricing and trading of tokens.

The initial supply is expected to consist of 200,000 UTO tokens with 10,000 NEAR. Because the AMMs use the constant product formula $X \cdot Y = K$, the price of UTO tokens can be modeled below. Initially, a 1 NEAR : 20 UTO relationship is established. Thus, the beginning price γ can be modeled as indicated below:

$$\begin{aligned}\gamma &= \frac{n_N}{n_U} \\ &= \frac{10,000}{200,000} \\ &= \boxed{0.05 \text{ NEAR/UTO}}\end{aligned}$$

The constant product K , without any additional liquidity provided (which will only be true in the very short term), will subsequently be:

$$\begin{aligned}K &= n_N \cdot n_U \\ &= 10,000 \cdot 200,000 \\ &= 2,000,000,000\end{aligned}$$

As a result, consider the case of a 100 NEAR purchase on market launch. Note the game theory here: this is not intended as financial advice, as it is likely to assume that the vast majority of tokens issued by NFT projects may end up worthless. However, the utility and strength of the SSS community means that NEAR tokens can be assumed to be spent. The 100 NEAR, at the assumed \$10 USD prices, equates to \$1,000. In that initial instance, the supply of NEAR would change (where n represents the pool amount and n^* represents the transaction notional):

$$\begin{aligned}n_N &= n_N + n_N^* \\ &= 10,000 + 100 \\ &= 10,100\end{aligned}$$

Under the constant product formula, the resulting pool amount of UTO would be:

$$\begin{aligned}n_U &= \frac{K}{n_N} \\ n_U &= \frac{2,000,000,000}{10,100} \\ &\approx 198,019.80\end{aligned}$$

This means that 1,980.2 UTO would be given out in the trade. The next purchase price would then start at:

$$\begin{aligned}\gamma &= \frac{n_N}{n_U} \\ &= \frac{10,100}{198,019.80} \\ &\approx \boxed{0.051 \text{ NEAR/UTO}}\end{aligned}$$

As demonstrated, the original ratio of 0.05 NEAR/UTO no longer exists, because otherwise extreme cases could entirely empty out the pool. The constant product formula acts as a relationship between the price and number of various tokens, meaning that as the number of NEAR token rises, the number of UTO tokens will have to be given out at a lesser rate over time. Note that this is not a special mechanic of the SSS collection, but rather a result of liquidity pools & their constant product formula. It's also important to recognize the resiliency of the pool and notably focus on the volatility σ that may persist. The 100 NEAR purchase led to just a 2% increase in token price. In that manner, a similarly-sized UTO sale would have a similar impact.

4.2 Expected Volatility

The team understands that volatility is very common in these markets, and one way to mitigate excessive downside pressure will be to add liquidity for a more stable environment. In that way, the larger token pool base means that the example 100 NEAR would have an even smaller proportional impact. The team may also attempt to reward liquidity providers who deepen the pool and improve price stability over time through the incentives allocation, ensuring that bad actors cannot easily manipulate the price. That being said, the volatility is still expected to be real in the beginning. Please be aware of the risks. While unlikely, if all emissions were to be continually dumped on the open market, then the price of UTO could materially decline.

4.3 Core Use Cases

At the end of the day, a large reason why most projects and tokens in the NFT ecosystem fail is because while they may have historically seen success through hype, they lose it to other projects that have more use cases. Listed below are a few key use cases planned by the team.

- **Gen 3 Collection:** Holders will be able to mint with UTO. UTO used to mint Gen 3s will be burnt.
- **Utopia Launchpad:** A portion of the launchpad proceeds will be used to buy back and burn UTO.

- **Skellie Battle:** More to come soon.
- **NFTs:** Opportunity to purchase other project NFTs through raffles and/or lotteries.

Note that in the future, the use cases will also incorporate community suggestions.

4.4 Additional Utility

The team understands that over time, utility in the environment is necessary to encourage that token holders see interest in holding on. Additional usage cases will be released over time, ensuring both the privacy of behind-the-scenes work. Notably, the launchpad will serve as another avenue to buy back and burn tokens, and now that the Grimm launch is done, will likely be reactivated in the near future.

5 Roadmap & Conclusion

The Grimm collection was successfully sold out on 6 March, 2022. In just a few short weeks since the start of the year, the Secret Skellies Society has grown to a stage where each NFT holder within the community contributes significantly to its long-term success. The team is incredibly proud of the progress, but realizes that continued work is necessary to keep growing their success. With the collections and tokenomics established, what's next?

5.1 Future Enhancements

SSS has dreams of going beyond simply a two-step project with few goals. Specifically, the team will engage in a vesting period for UTO to ensure that the project can be truly sustainable. Furthermore, in a recent tweet, the team announced that SSS has already received a grant from the NEAR Foundation. The future is incredibly bright, and the six key team members are even more dedicated to creating an amazing community – one that the world has never seen before.

5.2 Conclusion

So where does this leave us? With Grimm having his army created, and the Skellies worried about a potential war... What's next? Will the Skellies be able to control their dominant position even through their faltering numbers? Or will Grimm finally break through?

Stay tuned...

The SSS Team