Proposal Name:

Reward for gas fees optimizations implemented for AIP21 staking contract.

Proposal Category

aip, treasury, voting

Abstract

- Ape coin staking has been one of the most anticipated events in the crypto space. Ensuring the security and efficiency is a high priority.
- Multiple gas optimizations were proposed to the community and Horizen Labs team and received positive feedback, the team have implemented them and they are live on the mainnet staking contract.
- For the input on optimizing the gas fees consumption that were disclosed and discussed previously on an AIP idea, a reward is proposed for the timely contribution.
- Note that gas optimizations are completely out of AIP-134 bug bounty scope, as it is only focused on security vulnerabilities.

Motivation

- Due to the large-scale impact on saving Apecoin ecosystem stakers on gas fees for a prolonged period of time on every action they take in the process of using the staking service; includes deposit, claim and withdraw, a reward is proposed for the genuine contribution in the best interest of the ecosystem at the right time which has been implemented, deployed on the testnet, and already live on the mainnet!
- Gas fees saving currently might be insignificant that can be amounted from few cents to few dollars, but considering the magnitude of the apecoin users and the times when the Ethereum network has higher demand for block space (higher gas prices) similar to the ones of 2021 craze, then it would definitely make a significant difference.

Rationale

- Staking contract would be serving the ApeCoin family for the next 3 years. In this period of time, the amount of gas fees would be consumed is immense. In this regard, there are 3 collections eligible for staking with 25,000 total unique NFTs owners that owns at least 1 NFT and 103,000 unique $APE owners. Thus, any optimization would save the Apecoin family holders a lot of ETH in gas fees upfront! instead of being blatantly burnt.
- Since any user would at least deposit, claim and withdraw once in their lifetime usage. Which is 3 unique separate transactions. Let’s try to calculate an estimate for the gas cost that would be saved on average based on the past 3 years data, considering the following parameters:
- we use an average gas price of the past 3 years up to December 1st 2022 (credit: Etherscan) which is 71.2 GWEI.
- we use an average ETH price of the past 3 years up to December 1st 2022 (credit: Etherscan) which is 1658$.
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- The following is a table illustrating an overall gas stat when interacting with the contract functions using only 1 NFT token for NFT related functions using the previously mentioned parameters and 1000 iterations to average out gas consumption:

[

summary1000

1113×298 13.6 KB

](https://global.discourse-cdn.com/apecoin/original/2X/8/81bb823e842c6ff087bfef299ea994340da92a07.png)

- We have total unique owners as of (Dec 1st):
- APECOIN_TotalOwners = 103000
- BAYC_TotalOwners = 6420
- MAYC_TotalOwners = 12936
- BAKC_TotalOwners = 5586

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- We sum up all functions saved cost:
- APECOIN_TotalCost = 3.07 + 0.584 + 3.48 = 7.13$
- BAYC_TotalCost = 3.073 + 0.764 + 3.426 = 7.26 $
- MAYC_TotalCost = 3.086 + 0.759 + 3.425 = 7.27$
- BAKC_TotalCost = 3.548 + 3.603 + 3.562 = 10.71$
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- By calculating the total cost, we find:
- TotalCost = ∑ 〖TotalOwners * TotalCost〗 ≅ 934,870$
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- At least a 934,000$ is saved upfront in gas fees

potentially for all users in the next 3 years!

Key Terms

- gas consumption: total gas unit which is consumed by a transaction, it constitutes any transaction in the following formula:

Gas * Gas Price (in GWEI) = Gas Fees (in ETH)

- GWEI: a denomination of ether and a computation unit commonly used in gas prices:

1 GWEI = 10^9 Gas

Specifications

- A Github pull request was made on Nov 23rd showcasing all the optimizations to Horizon lab's repo:

optimizations suggestions by codeislight1 · Pull Request #3 · HorizenLabs/ape-staking-public · GitHub

- The discussion with Horizen labs dev team and the positive feedback:

Gas Optimization Proposal (30%-50%) · Issue #2 · HorizenLabs/ape-staking-public · GitHub

- The changelog in apestake official website:

Docs | ApeCoin Staking

- The repository to profile the gas differences and generate the table above:

[GitHub - codeislight1/optimized-apecoin-staking: Optimized Apecoin Staking Contract

](https://github.com/codeislight1/optimized-apecoin-staking)

- The mainnet contract incorporating the improvements, which was deployed on Dec 5th:

ApeCoinStaking | Address 0x5954aB967Bc958940b7EB73ee84797Dc8a2AFbb9 | Etherscan

- Dune dashboard elaborating on the gas fees savings live on the mainnet:

Optimized $Ape Staking Contract Stats

Steps to Implement

Once the proposal is approved, the Ape Foundation may use the tokens equivalent to a floor BAYC from the treasury to buy it on the open market and reward it to the contributor.

Timeline

Since the optimizations are already implemented, reviewed, incorporated and live on the mainnet, there is no needed timeline to be implemented.

Overall Cost

Proposed reward is a floor BAYC, equivalent to 10% of the funds saved upfront. It would be HODLed and staked to earn $APE rewards.