Additional insights from web3 reward emission research

We are currently undertaking a large-scale research effort to create better frameworks for token mechanics especially for Web3 protocols in the hardware resource provisioning sector.

We have recently published part one, where we have compared emission schedules of various Web3 networks, including of course Helium (both LoRaWAN and MOBILE). You can find the report here.

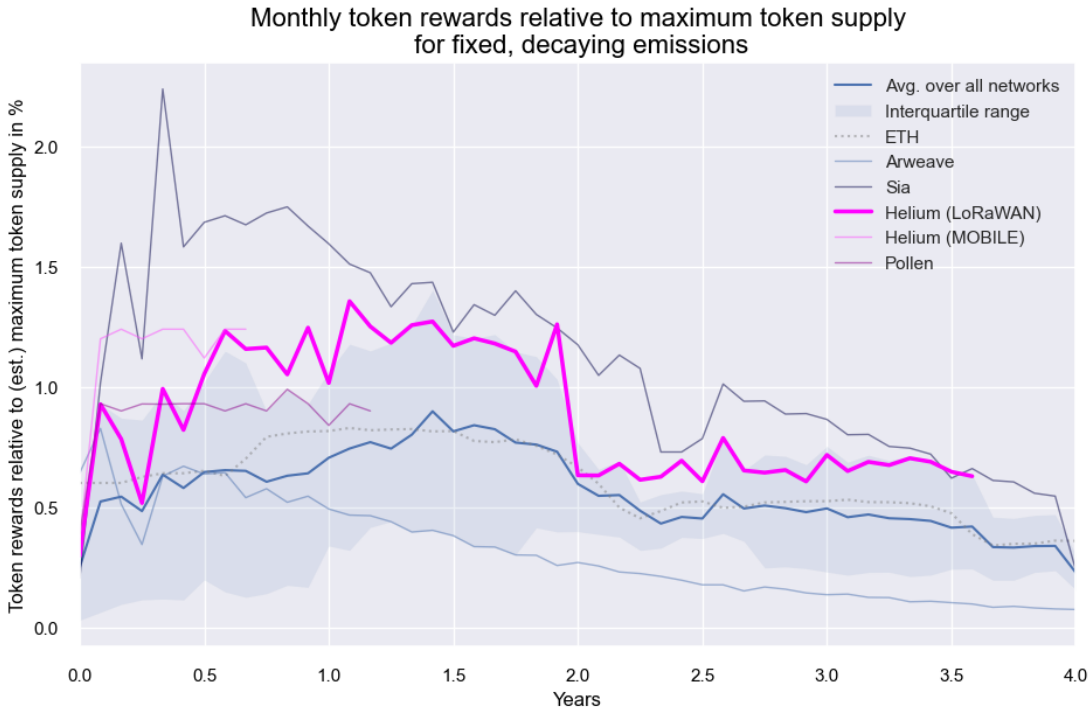
We wanted to share some additional data with the Helium community though, that is not in the report.

First off, we have classified Helium's token rewards to be in the category of fixed and decaying emissions (both LoRAWAN and MOBILE): Per HIP 20, the reward emissions are halved every two years starting at 5M HNT per month, hence rewards decay and their emissions are solely dependent on time (=fixed). The same is true for MOBILE as the halving of rewards happens on the same schedule as HNT.

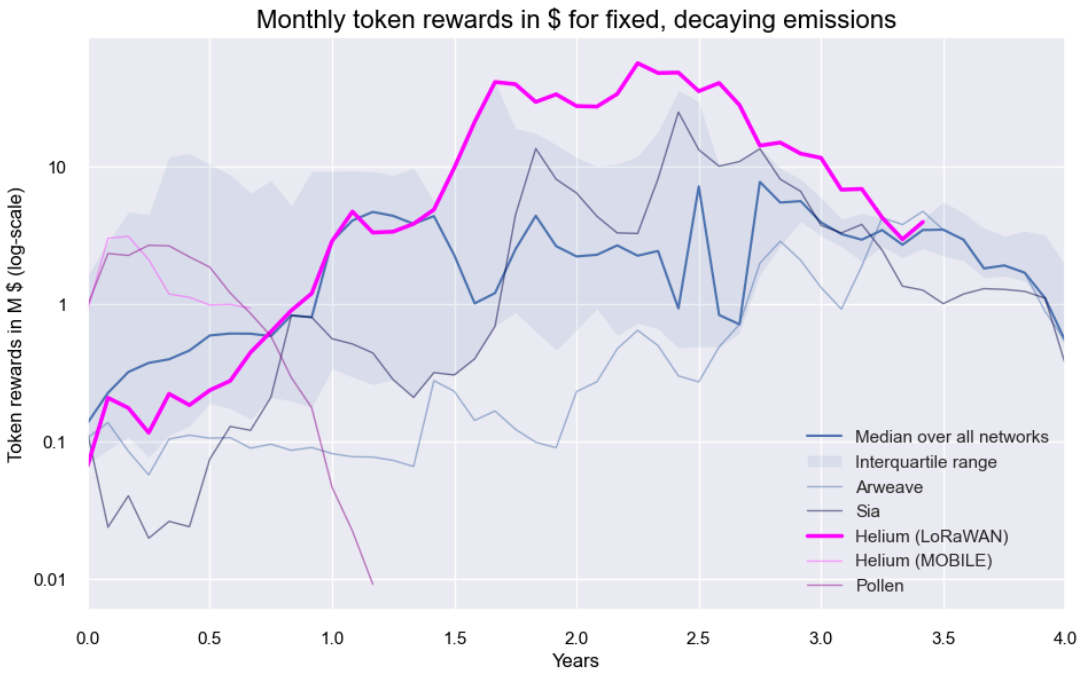
Within that category there are currently also the following projects we analyzed:

- Arweave
- Sia
- Pollen
- Render

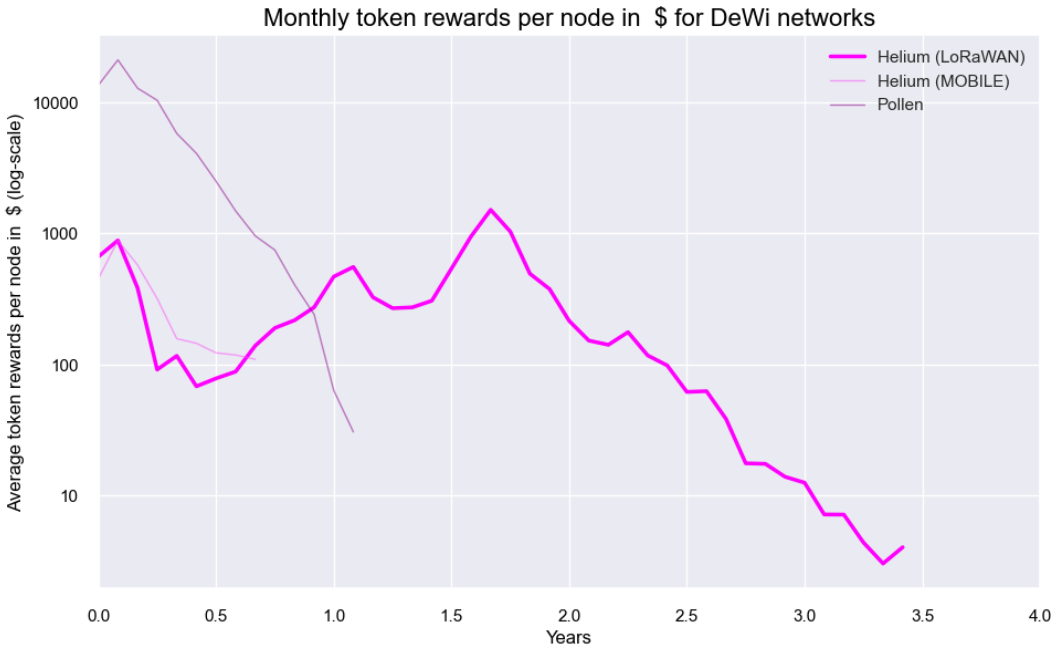
In comparison to the other projects in this category, Helium's (LoRaWAN) reward emissions are on the upper end of the spectrum (though not the highest): adding up the monthly emissions for hotspots so far relative to the maximum supply of 223M HNT, Helium is at ~39% so far (planned are 44% after four years and in total ~62% of HNT supply to reward hotspots). Again, the same is true for Helium MOBILE as they follow the HNT trajectory.
Below chart shows the average (blue line) and the interquartile range (blue shaded) of the monthly token rewards of all Web3 infrastructure networks together with the projects of the fixed and decaying emissions category highlighted:



Those token rewards for Helium LoRaWAN converted into dollar-values are also at the upper level of the category spectrum, but actually keep increasing after year 2, despite the halving as the HNT price continued to climb (year 2 corresponds to 08/2021 when HNT already surged to 20$ and even doubled in the six months afterwards). It is interesting to see that this discrepancy of token- vs. dollar-valued rewards is true for most of the networks of the fixed-decaying category (related to the price tailwinds of the 2021 bull market). MOBILE launched in 2022, hence faced rather headwinds from the market side, reflected in a decline of dollar-valued token rewards around month four, despite constant token reward emissions.



For Helium it might actually be more relevant to compare it to the networks providing similar services versus comparing it to projects with similar token emissions. In our selection it is just Pollen as an additional DeWi network, which is already included in the above charts since it falls into the fixed-decaying emissions category as well. Using the number of hotspots/CBRS radios onboarded, we can look at the rewards per node: The node-count steadily increased for all three networks over time, and hence the token rewards in dollar terms per node decreased faster than the total dollar amount shown in the previous chart:



This is in line with some of the sustainability aspects mentioned in the 2022 State of Decentralized Infrastructure report, but also comes with some caveats (e.g. i) this is all onboarded nodes, hence the actually rewarded nodes and their income is different, ii) Pollen's token model changed end of February and the API data is stale for the last 4 month of timeseries above).
More information around caveats like this and the data are available in this repo that also contains the paper with further details on the published report.

We hope this information yields some insightful information for the Helium community and we are open to your feedback. What would be some additional data you would want to see / topics to dive into?