

Vanillacoin: Proof-of-Work Reward v2.

Abstract

In this document we propose a change to the Proof-of-Work reward system that maintains the integrity of the original white paper[1] while reserving 40% of the money supply for long term network incentive[2] purposes.

Background

When Vanillacoin was released it had no node incentive mechanism. Because the original Proof-of-Work specification states that "The miner reward is adjusted in a way that a majority of all coins will be mined within the first 5 years." [1] by the year 2020 there will be no rewards left for incentive nodes[2].

General Overview

In order to maintain the node incentive system long term 40% of the money supply must be reserved in a way that doesn't negate the original white paper in regards to:

1. Total Money Supply
2. 1% Inflation by year five.

The percentage "40" is derived from the fact that the peak incentive reward currently in place is 40% of the Proof-of-Work reward.

Solution

1. Create long term reserves for incentive purposes.

We propose to cut the Proof-of-Work rewards in a way that doesn't cause immediate shock to the market but declines rapidly enough to reach 1% annual inflation by year 2020 while also retaining 40% of the money supply for long term Proof-of-Work mining ensuring the incentive systems remain funded past year 2020[3].

Example[4]:

```
int main(int argc, const char * argv[])
{
    int64_t subsidy = 0;
    int64_t subsidy_sum = 0;

    for (auto height = 0; height < 15768000; height++)
    {
        subsidy = (1111.0 * (pow((height + 1.0), 2.0)));

        if (subsidy > 128)
        {
            subsidy = 128;
        }

        if (subsidy < 1)
        {
            subsidy = 1;
        }

        subsidy *= 1000000;

        if (height < 325000)
        {
            for (auto i = 50000; i <= height; i += 50000)
            {
                subsidy -= subsidy / 6;
            }
        }
        else
        {
            for (auto i = 10000; i <= height; i += 10000)
```

```
    {
        subsidy -=
            subsidy / 28 - ((double)(10000.0f / height)
                ((double)(10000.0f / height)))
        ;

        subsidy -= (subsidy / 28 * 4) / 28;
    }
}

if ((subsidy / 1000000.0f) < 2.0f)
{
    subsidy = 2;

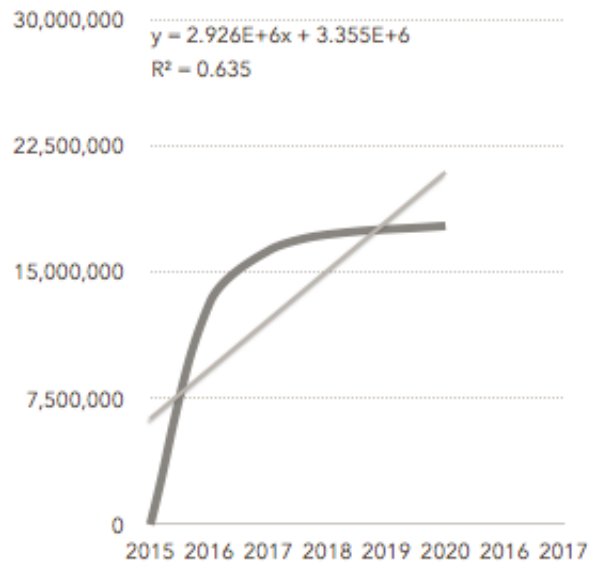
    subsidy *= 1000000;
}

subsidy_sum += subsidy;
}

return 0;
}
```

Money Supply Curve

| | |
|------|------------|
| 2015 | 0 |
| 2016 | 13,099,198 |
| 2017 | 16,246,330 |
| 2018 | 17,086,066 |
| 2019 | 17,410,023 |
| 2020 | 17,725,383 |



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Security Considerations

None

Conclusion

With our proposal we have satisfied the requirements which are essential for ensuring the incentive systems[2] remain funded beyond year 2020 while retaining the existing total money supply and still achieving 1% inflation by year 5.

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Public Key:

```
047d3cdc290f94d80ae88fe7457f80090622d064757  
9e487a9ad97f77d1c3b3a9e8b596796eb23a78214  
fc0a95b6a093b3f1d5e2205bd32168ac003f50f4f557
```

Contact:

```
BM-NC49AxAjcqVcF5jNPu85Rb8MJ2d9JqZt
```

References

1. <http://vanillacoin.net/papers/vanillacoin.pdf>
2. https://github.com/john-connor/papers/blob/master/node_incentives.pdf
3. <https://gist.github.com/john-connor/52563ada2f03b4f0d9e4>
4. <https://gist.github.com/john-connor/9f2af390362fbf1a8ab3>

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