Vcash: Proof-of-Work Reward v3.

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 10% of the money supply for long term decentralised governance purposes.

Background

When Vcash was released it had no decentralised governance 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 decentralised governance.

General Overview

In order to maintain the decentralised governance system long term 10% 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 "10" is derived from the fact that the peak incentive[4] reward will reach it's peak limit at 40% of the Proof-of-Work reward.

Solution

1. Create long term reserves for decentralised governance 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 2018 while also retaining 10% of the money supply for long term Proof-of-Work mining ensuring the decentralised governance system remains funded indefinitely through governance block rewards.

Example[3]:

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

 for (auto height = 0; height < 15768000; height++)
 {
     subsidy = (1111.0 * (std::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 if (height < 385000)
     {
         for (auto i = 10000; i <= height; i += 10000)
```

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

                subsidy -= (subsidy / 28 * 4) / 28;
            }
        }
        else
        {
            for (auto i = 7000; i <= height; i += 7000)
            {
                subsidy -=
                    subsidy / 28 - ((double)(10000.0f / height)
                    ((double)(10000.0f / height)))
                ;

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

        if ((subsidy / 1000000.0f) < 1.0f)
        {
            subsidy = 1;

            subsidy *= 1000000;
        }

        if (height % 7000 == 0)
        {
            printf("%d:%f\n", height, (double)subsidy / 1000000
        }

        subsidy_sum += subsidy;

        if (height % (157680 * 2) == 0)
        {
            printf(
                "%d:%f:%f\n", height, (double)subsidy / 1000000
```
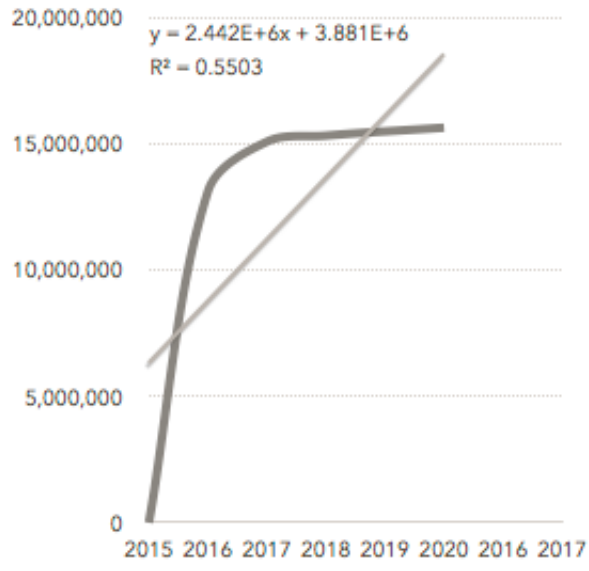
```
            (double)subsidy_sum / 1000000 / 2
        );


    }
  }

  return 0;
}
```

Money Supply Curve

2015	0
2016	13,099,198
2017	15,070,739
2018	15,310,785
2019	15,468,465
2020	15,626,145

$y = 2.442E+6x + 3.881E+6$
$R^2 = 0.5503$

Security Considerations

None

Conclusion

With our proposal we have satisfied the requirements which are essential for ensuring the decentralised governance system remains funded indefinitely while retaining the existing total money supply and still achieving 1% inflation by year 5.

Author

John Connor

Public Key:

```
047d3cdc290f94d80ae88fe7457f80090622d064757
9e487a9ad97f77d1c3b3a9e8b596796ebeb23a78214
fc0a95b6a093b3f1d5e2205bd32168ac003f50f4f557
```

Contact:

```
BM-NC49AxAjcqVcF5jNPu85Rb8MJ2d9JqZt
```

References

1. http://vanillacoin.net/papers/vanillacoin.pdf
2. https://gist.github.com/john-connor/60d4e1dd8cc987762c08c6ec8bad0184
3. https://gist.github.com/john-connor/d96fb222a3b97874262e3435e9baae11
4. https://github.com/john-connor/papers/blob/master/incentive.pdf

Draft Revision 01