



**DirhamCoin**

**COIN ( AED )**

The world's Green Economy  
fresh approach to money

## **TECHNICAL SPECIFICATIONS**

Multi Level reward  
digital currency  
system

Whitepaper

23 Sep 2017



The technical notes within this paper have been put together in order to clearly document and demonstrate the features and concepts of the ***Peer to Peer Verified Transaction*** digital currency. This paper will bring to light in broad detail as well as the technical aspects of the DirhamCoin digital currency System along with its intended benefits.



## INTRODUCTION

Most digital currencies are based simply on peer to peer cash systems that make use of miners to verify transactions, miners are like cashiers of the internet. What we offer is a masternode system that will split their block reward per block equally between the miner (cashier) and the masternode distribution mechanisms. The intention is to promote fairness of the reward distribution so that it may be subverted by the growth of masternodes held by large investors without limiting to a point of potential centralization of the budgeting system much like having a majority shareholder in a company. The additional benefits of masternodes can lead to less number of users conducting Proof of Stake (PoS) mining activities and thus lowering the security of the PoS network.

Due to the fact that Masternodes provide a valuable service as such should be rewarded for that service, however, our aim with regards to this is not to reward Masternodes way beyond the extra value they provide. We believe rewarding disproportionately benefits Masternode owners above and beyond other users of the system and ultimately will lead to a much higher degree of centralization



To offer a digital currency that breaks the mould, the feature outlined in this paper was developed and implemented with the sole intention of ensuring the security of the PoS network. This is achieved by creating an incentive for investors by giving them the ability to stake, this in turn promotes liquidity in exchanges and controls the growth rate and count of the Masternode network.



## AED OVERVIEW

*The scope of AED is to offer refreshing approach to managing finance that breaks the mold of traditional fiat currencies and banking systems. DirhamCoin is free of interest of any kind and through a reserve, establishes trust via the Blockchain offering several benefits over traditional fiat currencies; Securing the network, rewarding investors at a higher rate for running green nodes and issuing rewards for simply holding AED in a digital wallet. DirhamCoin does not rely on mining through ASIC or GPU as these consume a lot of power and can have long term effects.*

*AED runs on Blackcoin PoS 2.0 protocol that is based on the Bitcoin core 0.10.x code base model. It then utilizes a network of masternodes that offers an openly visible decentralized governance and increased transaction privacy.*

*The vision of AED is to establish a series of Hydroclimaponic farms, utilizing a vertical farming method, to grow green leafy vegetables, herbs, berries, ornamentals and other products of the highest quality; supplied on a just-in-time basis, that delivers the freshest produce to local and global markets.*



## PROOF OF STAKE 2.0 OVERVIEW

To achieve consensus; Proof of Stake 2.0 (PoS) requires nodes running a wallet software proving that it has coins in the blockchain (Ledger) in order to verify a block of transactions. The participating nodes receive a reward proportional to their stake (Amount of AED in the wallet) per set period.

This means that with more participating nodes (with roughly even amounts of AED) the network becomes very secure due to the increased difficulty of owning a majority of coins in the network.

## MASTERNODES OVERVIEW

Masternodes are nodes running the same wallet software on the same blockchain to provide extra services to the network.

For providing such services, masternodes are also paid a certain portion of reward for each block. This can serve as a passive income to the masternode owners minus their running cost.



## MAIN FEATURE OVERVIEW

In order to promote an even ratio between staking nodes and masternodes in the network, AED will utilize a variable Seesaw Reward Balance System that dynamically adjusts its block reward size between masternodes and staking nodes.

Each AED PoS block reward is split with 10% dedicated to the budgeting system and 90% dedicated to both the masternodes and stake mining reward. The reward portion is further split dynamically via the Seesaw Reward Balance System between masternodes and staking nodes.

At the root of DirhamCoin the logic is simple. The higher the masternode count, the smaller the reward portion of each PoS block that will be paid out to the masternodes and the larger the reward portion for staking nodes. Conversely, when the masternode count falls, the masternode reward portion is increased and the staking node reward portion decreased.

The PoS block reward starts with a ratio of 9 to 1 towards masternodes when the amount of coins locked to masternodes is lower than 1% of the total coin supply.

But as the number of coins locked to masternodes go above 41.5% of the total AED coin supply, the block reward amount will shift with more than 50% of the block reward going to staking nodes.

This has the effect of making it less attractive to provision more masternodes as it has the potential to significantly lower its profitability compared to staking that has less upkeep cost.

This threshold was selected as it would allow a strong network of profitable masternodes while creating incentive for approx. 60% of the total coin supply to be available for staking to secure the network and to maintain liquidity.

Another intended benefit and goal of the Seesaw Reward Balance System is to ensure that it is more profitable for users running masternodes than it would be to stake the equal number of coins, under the normal circumstances of being below the equilibrium threshold. The reason behind this is due to the extra cost, risk and time associated with maintaining the masternodes are greater than staking alone.

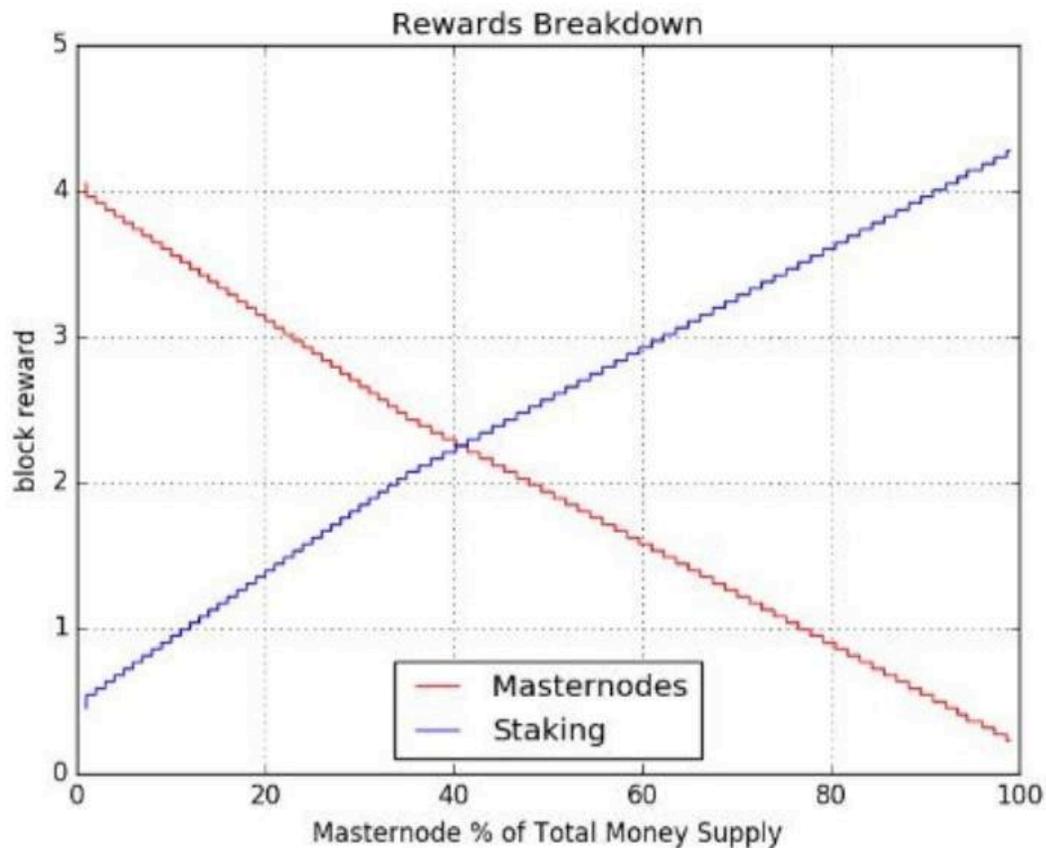
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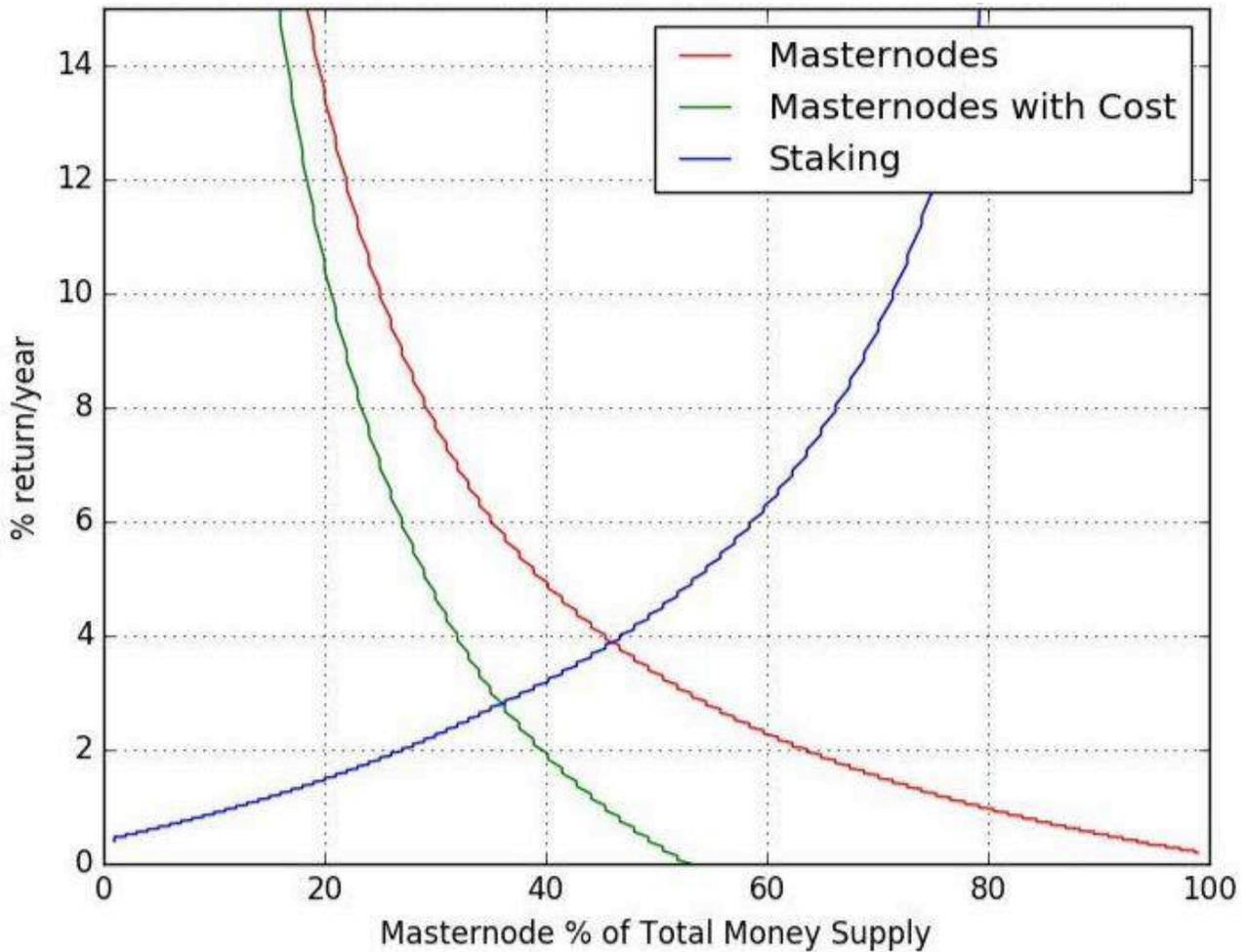
## SEE SAW EFFECT

The following graph illustrates the block reward amount (Y axis) for the masternodes (RED) and staking nodes (BLUE) against the percentage of total coin supply locked by masternodes (X axis)

Following graph shows the their theoretical annual percentage return where each block is fixed at 10 AED for the first year with an interval of 60 seconds. (1440 blocks a day)



Rewards with AED = \$1.0 and Masternode cost/year = \$300



The RED line represents the return of masternodes when there is zero upkeep cost per masternode and GREEN line is the logical masternode return curve on a hypothetical scenario where there is an annual upkeep cost of \$300 per masternode with the price of each AED at \$1 USD.



# CODE LOGIC WALKTHROUGH

The logic is intended to be simple as possible while being effective. This is to ensure its stability and to be able to easily determine its outcome and improve its logic if the need arises.

```
if (mNodeCoins <= (nMoneySupply * .01) && mNodeCoins > 0) {  
    ret = blockValue * .90;  
}
```

The blockValue is the total number of coins per block. This value is multiplied by the variable ratio that is determined by the percentage of the masternode coins, (mNodeCoins) in relation to the total coin supply (nMoneySupply). The result ret value is the number of coins for the masternodes portion of the reward.

Above example shows the very first logic used to determine the highest masternode portion payout. You can see that if mNodecoins is less than or equal to 1% of the coin supply (nMoneySupply) and also greater than 0, the return block reward value for the masternode will be 90% of the PoS block (ret = blockValue \* .90).

This logic continues for each increase in set percentages all the way until mNodeCoins is less than or equal to 99% of the coin supply.

```
else if (mNodeCoins <= (nMoneySupply * .99)  
    && mNodeCoins > (nMoneySupply *.987)) {  
    ret = blockValue * .05;  
}
```



## SUMMARY

The Seesaw Reward Balance System that AED utilizes, provides numerous benefits over reward split methods used by the majority of masternode featuring Proof of Stake crypto-currencies.

1. It can indirectly affect the total count of masternodes in the network by varying its reward size to alter its profitability versus staking.
2. Promotes staking by increasing its reward payment portion when masternode count is high and thus maintaining a high level of network security.
3. Profitability of masternode is kept higher than staking as long as the masternode count remains below the equilibrium threshold. (Approx. 40% of coin supply)
4. Allows all coins owners to get rewarded for holding coins rather than just the masternode owners, hence resulting in a fairer and less centralized system.

Thank you



# REFERECE

- [1] PoS 2.0 Whitepaper <http://blackcoin.co/blackcoin-pos-protocol-v2-whitepaper-cn.pdf>
  
- [2] DASH Masternodes <https://dashpay.atlassian.net/wiki/display/DOC/Masternode>
  
- [3] Seesaw Reward Balance System