EcoPayCoin: Future of Digital Economy

Abstract. *The EcoPayCoin (ECP) coin is a stable crypto-currency created on the principle of Bitcoin network created by Satoshi Nakamoto. It is a purely peer-to-peer version of electronic currency that allows online payments to be sent directly from one party to another without going through a financial institution and solve the problem of overuse of power consumed by Prof-Of-Work (POW) currencies.*

1. INTRODUCTION

The EcoPayCoin (ECP) coin is a stable crypto-currency created on the principle of Bitcoin network created by Satoshi Nakamoto. It is a purely peer-to-peer version of electronic currency that allow online payments to be sent directly from one party to another without going through a financial institution and solve the problem of overuse of power consumed by Prof-Of-Work (POW) currencies.

Proof-of-work had a goal. It was a simple one, really: prevent network centralization. The equation for this goal was a combination of cryptographic math, philosophy, psychology and resource costs inherent with hardware. But it missed a vital piece.

Coins based on Proof-Of-Work mechanism of mining are moving towards the cliff. This cliff is huge power consumption. POW coins power consumption is growing rapidly because a very inefficient consensus mechanism is used to ensure network security.

While the environmental factor alone already helps PoS stand out against PoW, there is another factor to be considered: maintaining a fair, distributed power across the network, which should be a high priority target of any cryptocurrency. With the expanding difficulty in mining that necessitates more powerful rigs that cost more to run, the ability for people to feasibly operate such rigs becomes more exclusive. Such things as the costs of hardware, electricity consumption spent on computing, and further consumption on cooling, rule out a great many locations as suitable for mining. Inevitably, this results in a great deal of power held by miners, of which fewer and fewer are able to remain competitive, not only leading to a monopoly in rewards, but in control over networks.

The EcoPayCoin (ECP) cryptocurrency is a currency designed to provide a scalable and sustainable alternative to that coins. The basic Eco Protocol uses a highly efficient consensus algorithm based on Proof-Of-Stake which solves numerous problems of Bitcoin stability and scalability. Moreover, EcoPayCoin (ECP) can be mined on any computer or laptop without special equipment.

EcoPayCoin (ECP) is a coin that seeks to shed light on a number of critical issues facing the blockchains based on proof of work, and to raise public awareness of the environmental and economic problems with regards to such issues

2. POW vs POS

As every concept or approach may have its own benefits and downside, PoW has its own downside as below

· Requires more electric power which in turn costs the miner
· High computing power hardware which is expensive
· Possibility of miners moving their hardware to mine a different coin if the reward is better there (loyalty)
· With more and more coins(like more count of bitcoins) getting released, miner's reward would come down as the coin becomes scarce to mine

Proof of Stake (PoS) is an alternate way of verifying and validating the transaction or block. This will pick the Validator (Equivalent of "miner" in the PoW) by the amount of stake (coins) a validator has and the respective age of the stake. If you have 100,000 alt in a wallet, it will have an age attached to it on how long you have it. Here the 100,000 ECP coins is the stake. If you move your coins from one address (or wallet) to another the aging gets reset. This amount is like the security deposit which means the Validator holds a significant stake in ECP coin with good aging is more committed and combined with many other factors, will get a higher chance to validate a block. This allows building a trusted and distributed network with loyal Validators (high stake of coins). The Validators earns the part or whole of the transaction fee. In PoS, it is not "mining" but "forging" which is done by the Validator who will process and forge a block to the chain.

This eliminates the below challenges from PoW and believed to have an advantage

· No need of expensive hardware (a normal laptop or computer running the respective coin's Validator client will do as long as your laptop or computer is online)
· Energy efficient as it won't consume high electricity as PoW does
· More loyal Validators …As higher the stake the Validators have for a long time, more chances for the Validator to be picked up for "forging" and earn the transaction fee
· Faster validations

In PoS, each validator owns some stake in the network, Ether in the case of Ethereum that they bond. Bonding stake means you deposit some money into the network and in some sense use it as collateral to vouch for a block. In PoW you know a chain is valid because lots of work is behind it, while in PoS you trust the chain with the highest collateral.

There are much more differences between the various Proof of Stake algorithms that are being developed but I am limiting to what I said so far just to provide a higher level of differences.

3. PROOF OF WORK

Many critical issues are related to inefficient SHA-256 algorithm used for Bitcoin operation. Now bitcoin faces four major challenges:

1. It requires an unstable amount of power.

2. It shares incentives between miners and all other users.

3. It is rather expensive and has low bandwidth

4. It consumes valuable computing resources in the world.

EcoPayCoin (ECP) uses an eco-protocol developed to solve all four problems.

4. POWER CONSUMPTION

The bitcoin network is run by miners, computers that maintain the shared transaction ledger called the blockchain. A new study estimates that this process consumes at least 2.6GW of power—almost as much electric power as Ireland consumes. This figure could rise to 7.7GW before the end of 2018—accounting for almost half a percent of the world's electricity consumption.

If Bitcoin mining growth continues at the current pace, Bitcoin will consume all world electricity by 2020. Power, which can be used for homes and electric cars, will be more often redirected to the massive Bitcoin hardware network. This enormous power consumption is not necessary to provide proof of block chain and it is the first and most important problem that EcoPayCoin seeks to solve.

5. SOLUTION

Despite the gloomy picture described above, there is a solution to all of the above mentioned problems. *Proof-Of-Stake* means an energy-efficient, scalable, and intuitive consensus mechanism that uses economic incentives to protect the blockchain network.

The proof of stake was created as an alternative to the proof of work (PoW), to tackle inherent issues in the latter. When a transaction is initiated, the transaction data is fitted into a block with, and then duplicated across multiple computers or nodes on the network. The nodes are the administrative body of the blockchain and verify the legitimacy of the transactions in each block. To carry out the verification step, the nodes or miners would need to solve a computational puzzle, known as the proof of work problem. The first miner to decrypt each block transaction problem gets rewarded with coin. Once a block of transactions has been verified, it is added to the blockchain, a public transparent ledger.

Mining requires a great deal of computing power to run different cryptographic calculations to unlock the computational challenges. The computing power translates into a high amount of electricity and power needed for the proof of work. To foot the electricity bill, miners would

usually sell their awarded coins for fiat money, which would lead to a downward movement in the price of the cryptocurrency.

The proof of stake (PoS) seeks to address this issue by attributing mining power to the proportion of coins held by a miner. This way, instead of utilizing energy to answer PoW puzzles, a PoS miner is limited to mining a percentage of transactions that is reflective of his or her ownership stake. For instance, a miner who owns 3% of the Bitcoin available can theoretically mine only 3% of the blocks.

Bitcoin uses a PoW system and as such is susceptible to a potential Tragedy of Commons. The Tragedy of Commons refers to a future point in time when there will be fewer bitcoin miners available due to little to no block reward from mining. The only fees that will be earned will come from transaction fees which will also diminish over time as users opt to pay lower fees for their transactions. With fewer miners than required mining for coins, the network becomes more vulnerable to a 51% attack. A 51% attack is when a miner or mining pool controls 51% of the computational power of the network and creates fraudulent blocks of transactions for himself, while invalidating the transactions of others in the network.

With a PoS, the attacker would need to obtain 51% of the cryptocurrency to carry out a 51% attack. The proof of stake avoids this 'tragedy' by making it disadvantageous for a miner with a 51% stake in a cryptocurrency to attack the network. Although it would be difficult and expensive to accumulate 51% of a reputable digital coin, a miner with 51% stake in the coin would not have it in his best interest to attack a network which he holds a majority share. If the value of the cryptocurrency falls, this means that the value of his holdings would also fall, and so the majority stake owner would be more incentivized to maintain a secure network.

In addition to Bitcoin, Litecoin (LTC) also uses the PoW method. ECP is an example of a cryptocoin that uses the PoS method. Some coins like Peercoin (PPC) use a mixed system where both methods are incorporated. In 2017, Ethereum (ETH) began the process of completely switching from a PoW to a PoS system.

6. ECOPAYCOIN

The EcoPayCoin team (ECP) has developed a revolutionary new consensus mechanism called *Eco Protocol*. The Eco protocol is energy efficient, extremely fast and includes proof of efficiency (Proof-of-stake). The aim of Eco Protocol is to promote a stable alternative of the existing algorithm of checking Bitcoin operability with SHA-256. The Eco Protocol uses Proof-of-Stake and does it only in combination with fixed block awards to create a fair distribution of coins.. The total stock of EcoPayCoin is recorded as 21,000,000, as well as for Bitcoin.

The Eco-protocol is based on DASH and modified to use both the Proof-of-Stake and the masternode consensus. EcoPayCoin doesn't need any expensive ASIC for operation.

Launching a wallet with requires no more than one tenth of power required to launch one POW miner. Wallets can also work on low energy efficient computers. Assuming that all users use medium-sized desktops, maximum power consumption of EcoPayCoin is miserable comparing to current Bitcoin consumption.. However, this consumption is possible only if all coins locked in individual computers masternodes. It is more reasonable

to assume that EcoPayCoin will consume only 0.0006% - 0.006% of the current total POW consumption. Moreover, it will take many years before consumption will be near this level.

Our aims go beyond creating stable, energy efficient and reliable cryptocurrency.

EcoPayCoin is an organization created to raise awareness of challenges related to Bitcoin sustainability. Moreover, EcoPayCoin will focus on education, training the public in area of cryptocurrency and providing resources for investors and developers to learn about Proof-of-stake. EcoPayCoin believes in the future. Our awareness-raising campaign will be an integral part of EcoPayCoin's success.

7. MASTERNODES AND STAKING

The ECP network is two-tiered. The network is composed of the first, staking tier, in which all ECP holders can participate in through staking their ECP coins; and the more exclusive masternode tier.

Masternodes are a set of security nodes on a network within the ECP network responsible for the handling of particular specialised tasks. The ECP Masternode network has been carried over from Dash, though with the significant restructure to a Proof of Stake consensus algorithm. The functions carried out by ECP masternodes are fundamentally similar, however, to those of Dash. As such, these nodes are an integral part of the ECP digital ecosystem, and necessary to network functionality.

The Masternode network allows for near instantaneous transactions, as short as a single second. With transaction times provided by SwiftX, ECP is able to compete with similarly fast crypto currencies, as well as transactions of credit and bank cards. SwiftX transactions take place independently of the network proper, as they are isolated to the Masternode network.

8. CONCLUSION

EcoPay team are blockchain evangelists. We believe that blockchain technology will change the world more than the Internet. Blockchain will add transparency to governments, corporations, and other powerful institutions. Blockchain will unite the world in business, social and political spheres in an unprecedented degree. We believe that most part of inequalities and problems in the world result from the enrichment of some parties without bringing real value.

EcoPayCoin is the first stable coin. The Eco Protocol is an intuitive, scalable solution that solves the problem of sustainability and scalability of Bitcoin. EcoPayCoin is a really decentralized network that removes the main disadvantages of POW. It gives advantage to coin holders and will never   require expensive and wasteful mining equipment.

Transaction fees will be forever low and the network will obtain high bandwidth. EcoPayCoin is a faster and more scalable cryptocurrency that is better suited for daily transaction use.