

## **Bitcoin ECO Whitepaper**

Abstract: Though Bitcoin (BTC) has attracted extensive public attention and recognition, it has intrinsic inabilities that require proper solution to underpin its ever-growing development. First and foremost, the blocksize limit of 1 Megabyte (MB) is restricting the future development of Bitcoin. The current daily transaction volume has led to a point where Bitcoin is reaching its maximum transactional capacity. It desperately requires timely solution that supports the widespread adoption of Bitcoin and surging demand of transactions. Secondly, Bitcoin mining has been notorious for its high energy consumption. According to relevant statistics, the annual consumption of electricity by Bitcoin mining is 29.05TWh, so high as that of 159 countries, combined, resulting in enormous waste of resources. As such, Canadian Blockchain Community introduces a new fork of Bitcoin – Bitcoin ECO (BEC), addressing above mentioned problems by POS consensus protocol and expansion of blocksize.

### **A. Blocksize expansion**

In 2010 when Satoshi Nakamoto first introduced the 1MB blocksize limit of Bitcoin, it was originally designed to prevent overload of block data on the disk space that causes the collapse of Bitcoin transaction. At the moment, a new block is generated for every 10 minutes on average and meanwhile the average Bitcoin transaction is about 250 bytes big, meaning that a new block can underpin 7 transactions for every second. However, with increasing popularity, the transaction volume of Bitcoin has increased exponentially. Satoshi has hardly predicted its invention to be one of the most popularly traded digital asset in the market and the original design to facilitate transaction has become the biggest problem that causes heavy traffic and delay on Bitcoin network. Based on the intrinsic inability, Bitcoin ECO suggests a blocksize of 4MB, which will effectively improve transaction and verification speed and thus reduce the transaction cost.

### **B. Mining mechanism**

Bitcoin uses the Hashcash Proof of Work (PoW) mechanism for block generation and mining. Miners have to use abundant computing powers to complete a proof of work that covers all the data in the block. The difficulty of this work is adjusted so as to limit the rate at which new blocks can be generated by the network to one every 10 minutes and the adjustment of the

difficulty is entirely determined by the market. In other words, it is affected by the number of new miners, which in turn is affected by the price of Bitcoin. In conclusion, when the computing powers are improved, the time to search for a valid block is shortened but at the same time the difficulty of PoW will be increased to maintain the 10 minutes rule. As the recognition and the price of Bitcoin are accelerated, more new miners will enter the market. Given that a more efficient hardware for bitcoin mining takes time to develop, existing miners will purchase more mining hardware to raise the computing powers in order to generate the next block. The vicious circle leads to a waste of electricity.

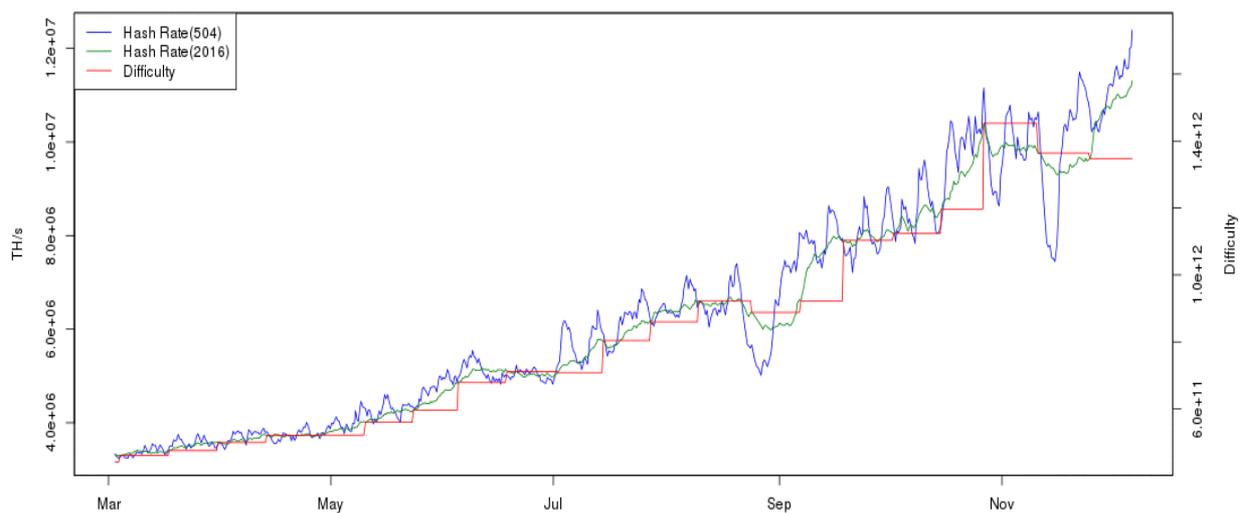


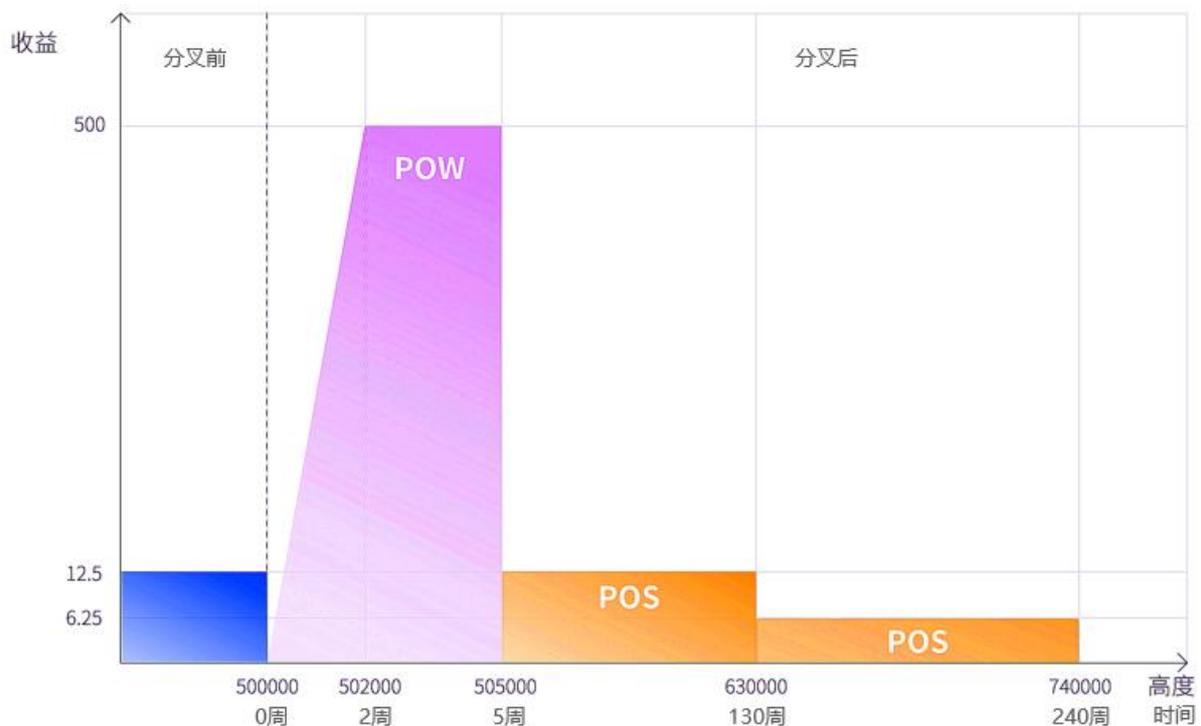
Figure 1: Recent increase of Hash rate and difficulties (March 2017 – Dec 2017). \*Hash rate refers to average Hash calculations per second: blue curve based on more than 504 blocks and green curve based on 2016 blocks. (Reference: bitcoinwisdom.com)

The incentive of mining mechanism for Bitcoin generation is to establish a voting system on blockchain, where greater voting right is assigned to miners with higher computing powers. Thus, Bitcoin ECO can set up a comparable voting system where voting right is determined by the current coin holding, i.e. Proof of Stake (PoS) rather than on computing powers. This mechanism is advantageous as the nature of 'virtual mining' of PoS abandons the heavy consumption of electricity and thus reduces energy waste. Provided its environmentally friendly characteristics Bitcoin ECO will be welcomed by the industries.

### C. Allocation mechanism

BEC increases total volume by 1000 times to 210 billion coins with a conversion rate with Bitcoin of 10000:1. BEC fork will happen on block height of 500,000, upon when 16,750,000 Bitcoin would have been mined and 4,250,000 would have not. BEC will be allocated as following (stated in 1 BTC or 10000 BEC): 2,000,000 BTC equivalent will be generated from 5,000 'super blocks'; first 2,000 'super blocks' (i.e. 500,000 BTC equivalent) subject to SlowStart linear growth<sup>1</sup> and then the 3,000 blocks (i.e. 1,200,000 BTC equivalent) yield 500 BTC equivalent per block. The remaining 2,250,000 BTC equivalent will be allocated in accordance with current PoS until final block height of 740,000.

Height	Cycle	Reward per block
<500,000	Bitcoin POW	12.5
500,000~502,000	POW SlowStart Super Block	0.125~499.875 Linear Gr.
502,000~505,000	POW Constant Super Block	500
505,000~630,000	POS	12.5
630,000~740,000	POS	6.25



<sup>1</sup> Specifically, on the block height of 500,001 each block yields 0.125 BTC, with each preceding block yields 0.25 BTC more than previous one till the height of 502,000 where each block yields 499.875.

#### **D. Conclusion**

As the only 'Sustainable development growth' (SDC) compliance cryptocurrency, BEC not only resolves the problem of blocksize limit and concentration of computing powers but relieves the heavy consumption of energy. While BEC is allocated pro rata to current Bitcoin holders, it in certain degree reduces the cost of allocation and thus is hoping to attract wide-spread attention from Bitcoin users.