

Security, Decentralization & Value of NewEnglandcoin

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No Hard Fork in 2019 Q2 or in Near Future

We have promised a quarter ago to evaluate the results of past NENG software upgrade and to decide further need for NewEnglandcoin hard fork in 2019 Q2. Here we announce that there will be no need for any further hard fork in 2019 Q2 and the block chain in NENG v1.2.1 will be expected to stay for quite long time.

NENG v1.2.x Hard Fork Evaluation

It has been almost two months since NewEnglandcoin v1.2.0 hard fork was released for the purpose of improving security and decentralization. Our research over past two months all indicate major success on the hard fork and the hard fork have delivered more than we have planned originally on two features: anti-instant mining and significantly reducing risk of 51% attack.

Instant mining certainly has been removed after hard fork. Two months, more than 137,000 blocks since the hard fork, there has been no block found within first three seconds of block time. As we described, the v1.2.x new software raised difficulty dramatically higher, we call it "spike diff" within first three seconds after last block time. Instant mining was blocked because ASIC mining rigs, no matter how large the hashrate were, were unable to found block reward to meet the "spike diff". In fact, our research on past two months since hard fork indicated that large ASIC rigs are not major mining force on NENG blockchain, GPU or CPU or small ASIC mining rigs are the dominant force on NENG now.

NENG 51% Attack Cost - \$10,000 USD

We believe that NewEnglandcoin (NENG) has Stronger Security Against 51% Attack than Most Altcoins. Our research put cost of 51% attack on NENG above majority of thousands of altcoins there in the world.

So far up to date, NewEnglandcoin blockchain achieved same security record as top tier coins (Bitcoin/Litecoin/Dogecoin): zero incident of 51% attack hack.

Bitcoin Gold was hacked by 51% attackers, Litecoin Cash was hacked by 51% attackers, NewYorkcoin was hacked by 51% attackers multiple times. NewEnglandcoin had none in history, will likely to stay zero now that we have successfully implemented huge security upgrade with hard fork.

51% attack risk is nasty thing for any altcoins. One important argument in favor of altcoins is that altcoins typically has much less transaction fees than bitcoin and can be used more user-friendly in exchange crypto trading or retail goods value exchanges. However, any altcoin transaction in exchange is limited by the risk of 51% attack because if the 51% attack is profitable, you bet some hackers will attempt to do just that in a high volume exchange. For example, when some one place a buy order in a size larger than 51% attack cost, the buyers got to think twice of any potential double spending 51% attack risk there. We think over the long run, an altcoin is not likely to survive if this security issue is not resolved.

Here are some of compiled research of 51% attack cost on various altcoins:

<https://www.exaking.com/51>

Highlights of some of 51% attack cost in the third party research on above link:

Bitcoin - \$553,982

Ethereum - \$360,114

Litecoin - \$64,954

Dogecoin - \$40,908

Dash - \$15,439

Electroneum - \$7,383

Bitcoin Gold - \$3,858

Litecoin Cash - \$515


NewYorkcoin - \$100 (estimate)

NewEnglandcoin - \$10,000 (estimate)

We estimated NewYorkcoin 51% attack cost should be similar to that of Linx as the current hashrate for NYC is about 100GH/s and in many days could be approaching 300 to 500 GH/s net hashrate. Using Linx data in the link we obtained \$100 USD estimate of 51% attack cost on NYC.

It is difficult to estimate NENG 51% attack because of DynDiff algo on top of scrypt. From several data we collected and analyzed, we believe that NewEnglandcoin should have \$10,000 or higher 51% attack cost, much higher than a typical PoW altcoin. This would make NENG security leap forward into the top league of PoW coins in the same group as Dash and above Electroneum or Bitcoin Gold.

One way to obtain the estimate of NENG 51% attack cost is using the data from mining pool such as 0769 (<https://www.0769.it/site/mining>) with below screen shot:

Name	Amount	Diff	Block	TTF***	Hash**	Net.Hash**
 New England Coin (script)	20000 NENG	244.137 k	411 215	6 months	64.2 Mh/s	131.1 Th/s

As all can see, the pool 0769 sees NENG mining at 64 MH/s at average 6 months per block finding time with 131 Th/s Net Hashrate. This is close to Dogecoin Net Hashrate level which has 51% attack cost of \$40,000 on 2 million diff level.

In fact, we estimated couple of weeks ago that at 244k NENG spike diff level, a dogecoin net hashrate level rigs would find NENG block averaging 5 seconds per block. This means that even if a hypothetical huge ASIC hashrate rig fleet move from dogecoin mining into NENG mining would get stuck on NENG block chain. Some NENG blocks would be find within first 3 seconds, some would be after 3 seconds, which would get stuck on NENG due to sudden drop of diff from spike diff to base diff after 3 seconds. Because ASIC mining will get stuck on post 3 seconds block time, our estimate of \$10,000 USD 51% attack cost is quite conservative.

Decentralization - Solo Mining Up, Mining Pool Down

Graph 1 shows the mining distribution of GPU vs ASIC since the hard fork two months ago on NENG block chain. Some big ASIC miners left NENG mining after hard fork and two public mining pools only generate minority of NENG rewards in any given time recently.

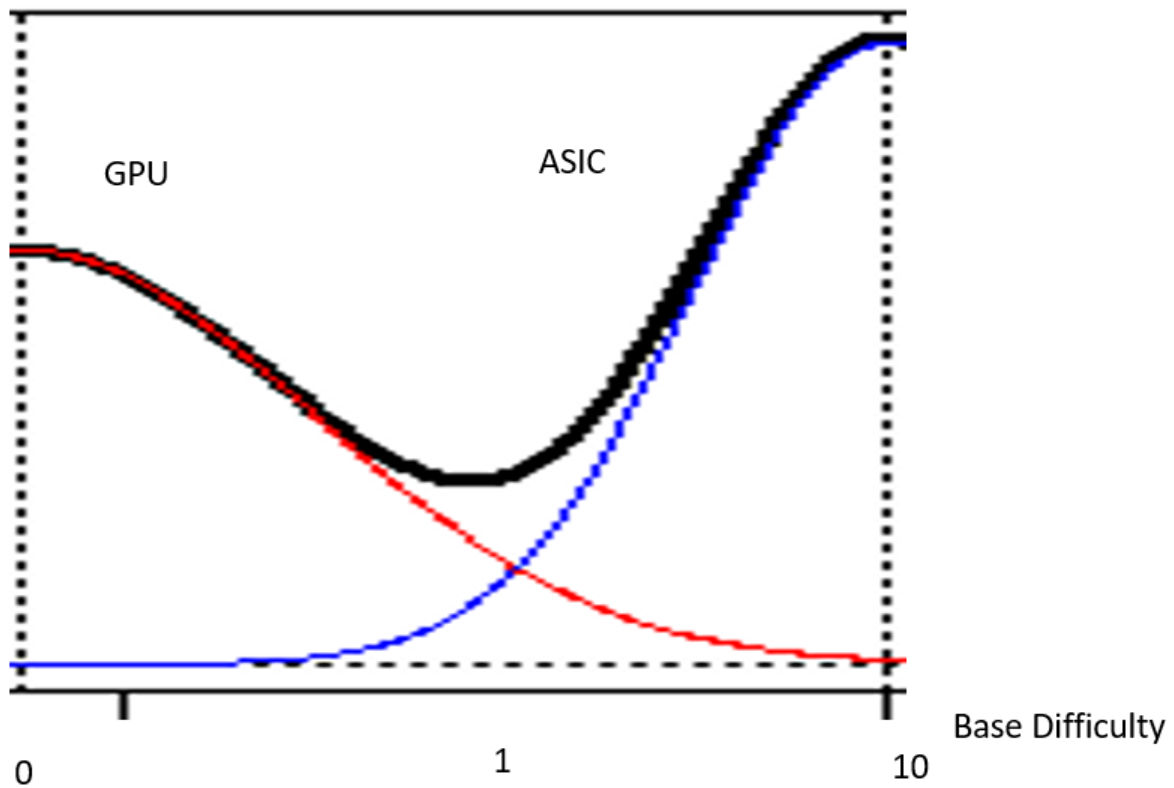
As shown in graph 1, NENG block chain base difficulty tend to reset every couple of days to every 1 week. The base difficulty will gradually rise from zero after reset with GPU rigs dominating the block rewards. The reason that GPU mining rigs could have crushed ASIC rigs in the low base difficulty period was because of spike diff within 3 seconds. The ASICs in low base diff period are instant miners and will find new blocks within couple of seconds. Because Spike difficulty within first 3 seconds have 244k diff, all the blocks found by ASICs were deemed as invalid. GPU rigs solo miners can find block rewards in this period comfortably.

When base diff rise to 1 or above because of huge GPU mining rigs mining NENG, ASIC rigs will dominate NENG mining again as the found blocks are outside the 3 seconds spike diff region. In the right side of graph 1, GPU gradually lost dominance and ASIC will recover its dominance on NENG again.

CPU rigs can be either applied on Cheetah_CpuMiner software or on constant solo mining mode without Cheetah. We estimate that CPU miners obtained 10% to 40% of total NENG rewards across different range of base difficulties.

Because of v1.2.x hard fork, NENG mining is no longer dominated by mining pools. We believe solo miners of CPU/GPU/ASIC obtained majority of block rewards. We ourselves tested one small ASIC rig (3 MH/s hashrate) and found that on left side of graph 1, solo mining set up for small ASIC can yield several times more block rewards than simply placing it into public mining pools.

% of Block Rewards



Note: CPU rigs mined 10% to 40% of total NENG block rewards across wide range of base difficulty.

Graph 1

In conclusion, our research on real NENG block chain data over past two months showed that the hard fork achieved decentralization of NENG mining so that a couple of mining pool is no longer dominant force on NENG.

What if 51% Attackers Utilize GPU fleet?

GPU rigs are not cheap and have significant higher cost than ASIC on per hashrate base. For convenience and low cost of attacking, attackers would favor renting GPU hashrate from nicehash, etc rental place. Our research showed that NENG block chain penalize GPU mining rigs in a mining pool or rented source because DynDiff algorithm is heavily in favor of solo miners. One large rented GPU hashrate essentially is equal to ASIC miners as shown in graph 1. It is not only difficult to setup many solo GPU miners but also very costly to do so.

Our testing over past two months with GPU mining on NENG indicated that the GPU mining is more of diversification game with many solo miners instead of hashrate power game. GPU mining rigs

constantly get stuck on NENG blockchain either due to 3 seconds spike diff or due to 2 minutes sudden drop of diff. It is extremely difficult to design a way to 51% attack NENG using GPU and we certainly do not know how to do that and do not believe anyone can do that in low cost fashion.

Further more, in ASIC mining setup with averaging a few seconds block time, attackers do not have to worry about getting stuck on 2 minute part where only CPU miners can mine NENG with Cheetah. Any GPU mining setup intending to 51% attack NENG would not escape of the issue of GPU mining getting stuck when the block time passed 2 minutes. This 2 minute block time sudden drop of diff ensures the security of NENG against any potential 51% attackers intending to use GPU rigs.

NENG Valuation is Dirt Cheap

With better security against 51% attacks, NENG is more suitable for retail transactions or exchange trading purposes than majority of altcoins.

We believe the NewEnglandcoin trading price now at exchange is dirt cheap at 0.00005 doge, or \$0.00000017 USD/NENG. At 9.18 billion NENG in circulation, this put NewEnglandcoin (NENG) market cap only at \$1,560 USD. Below are some of peer comparison of market cap:

coin	Market Cap	51% Attack Cost
Dogecoin	\$405,000,000	\$40,908
Bitcoin Gold	\$324,000,000	\$3,858
Electroneum	\$61,000,000	\$7,383
Litecoin Cash	\$7,900,000	\$515
NewYorkCoin	\$1,600,000	\$100
NewEnglandcoin	\$1,560	\$10,000

Table 1

If NewEnglandcoin (NENG) trades at NewYorkcoin market cap, NENG price can rise 1000x to 0.05 DOGE at 1.6 million USD market cap. NENG valuation certainly deserve the market cap of New York Coin at minimum level.

Region	Population	GDP	Largest City
New England	14.8 million	\$764 billion	Boston
New York	19.5 million	\$1103 billion	NewYorkCity

Table 2

Even if we argue that New England is smaller size compared to New York, we can argue from above table 2 that New England has about 70% of population or GDP of New York. Therefore, if NewEnglandcoin trades at 70% of NewYorkcoin market cap, NENG should trade at 0.035 doge or 700x more than the current price at ShorelineCrypto Exchange.

Announcement of NENG Fiat Project for all U.S. Residents

As part of disclosure, ShorelineCrypto is investigating Fiat USD/NENG purchase offering using our parent company banking relations and Square service offerings. We believe the USD/NENG purchase offering can be launched in multiple phases starting from 2019 Q2 to all U.S. residents by imposing a very low purchase limit while ShorelineCrypto can be still complying with all the anti-money laundering laws in U.S.A. Legally, cost of doing fiat/NENG in USA is extremely high because of all the banking, money service regulations. However, there should be minimum cost or regulation and no need for KYC if we only allow small dollar purchase of NENG with strict maximum cap at ShorelineCrypto.

The motivation of NENG Fiat project is to boost the NENG acceptance as important crypto currency for retail and trading usage and improve the liquidity of NENG trading. Currently a buyer buy NENG from exchange, and decide to sell NENG immediately, the buyer would face 50% immediate loss because the bid/ask spread on NENG trading is very high and liquidity is poor on NENG. When this fiat project launches at ShorelineCrypto, ShorelineCrypto will operate hedging positions using Square bitcoin service and convert to DOGE to buy NENG at equivalent doge pair price in ShorelineCrypto exchange so that buyer of NENG will no longer face huge loss from immediate sell in the future.

We believe miners and traders should also see better NENG trading price in the future so that they can dump their mining rewards at higher price because of liquidity boost from Fiat project hedging.

In the long run, a successful fiat project on NENG can put NewEnglandcoin as niche alternative for small dollar fiat entry into crypto market for U.S. residents. Currently most U.S. buyers convert their USD to bitcoin at Coinbase or Gemini etc, then transfer their bitcoin to an exchange to sell for dogecoin or any other altcoins. It works well for large amount at \$100 USD or more even on a bitcoin transaction fee of \$1. However, if one wants to buy or sell \$1 to \$5 USD dollar, the bitcoin transaction fees are too high. Here we can offer a low fee method of buying NewEnglandcoin with \$1 to \$5 USD, then convert to dogecoin at almost no loss, and then transfer the dogecoin out of ShorelineCrypto to wherever you want to trade or use dogecoin.

Bitcoin is gold, Litecoin is silver, Dogecoin can be said as copper. Dogecoin has huge listings at multiple exchanges and can be converted to bitcoin easily at exchange with low fees. With NENG/DOGE trading pair at ShorelineCrypto exchange and utilizing the capability of dogecoin popularity and low transaction fees, this NENG fiat project has the potential to put NENG into important coin in U.S.A crypto market.

Announcement for Mobile Miner Project Initiation

Immediately today, we initiate a new mobile miner project for evaluations and implementation. The NENG mobile miner will offer Android/iPhone users to mine NENG on their cell phone and receive NENG reward daily. Of course, the mobile mining is not a true mining, just a simulation on cell phones to allow users to receive rewards, say 10 NENG per day.

At this early stage, we foresee the eventual working mobile miner for NENG will be some javascript based web page where cell phones can register and click for rewards daily. The project is going to be planned and implemented in multiple quarters and the funding source will come from donation from NENG communities.

Conclusion

NewEnglandcoin (NENG) is underpriced at only fraction of market cap of NewYorkcoin while the security of NewEnglandcoin is significant better against 51% attacks. Even on population or GDP comparison against NYC, NENG should trade significantly higher.

Also stay tuned in bitcointalk Ann or DISCORD for further news of NENG Fiat project and NENG Mobile Miner project.