



E Source Forum 2018

Crystal Ball Session

What is Crypto-Currency?



- Digital currency secured using cryptography
- Not issued by the government
- Created and controlled by computer programs or algorithms.
- Total number of crypto-coins is limited
- Users record transactions directly between peers rather than through banks or other intermediaries
- Rumors circulating that Nasdaq is preparing to list multiple currencies by 2019

What are the key energy drivers of creating cryptocurrencies?

- Miners solving complicated math problems that become progressively more difficult
- Speed of block hash generation is increasing exponentially
- Industry is racing to amass large scale infrastructure and consolidation

version	02000000
previous block hash (reversed)	17975b97c18ed1f7e255adf297599b55330edab87803c81701000000000000000
Merkle root (reversed)	8a97295a2747b4f1a0b3948df3990344c0e19fa6b2b92b3a19c8e6badc141787
timestamp	358b0553
bits	535f0119
nonce	48750833



Bitcoin Mania Triggers Miner Influx to Rural Washington

Small towns confront surge in power demand as firms that generate new cryptocurrency units ask to set up shop

THE FUTURE

Bitcoin is consuming as much energy as the country of Ireland

Ireland gives us whiskey, Bitcoin gives us... hmm.

GREAT SCOTT! —

New study quantifies bitcoin's ludicrous energy consumption

Bitcoin could consume 7.7 gigawatts by the end of 2018.

BANKS CONSUME OVER THREE TIMES MORE ENERGY THAN BITCOIN, ACCORDING TO RESEARCHER

BITCOIN MINING NOW ACCOUNTS FOR ALMOST ONE PERCENT OF THE WORLD'S ENERGY CONSUMPTION

Crypto-Coin
Mining Energy
Forecasts :
DEBATABLE

Alex de Vries published his forecast in the scientific journal- Joule: Bitcoin will use 0.5% of the world's energy by 2018.

Dr. Jon Koomey-(Formerly with LBNL) challenges Alex de Vries' forecast methodology (top-down) as an incorrect approach to determine energy use.



Not All Crypto Currencies are the Same



KWH Coin

- An “ecoledger” creating a borderless renewable energy generation and distribution network
- Projects in Kenya, Sierra Leone, Puerto Rico and the Caribbean
- Enercor Inc. assigning a specific number of leases in an undeveloped oil formation with an appraised value of \$1.3B for development of green technologies and integration of KWH Coin’s ecoledger

Utilities and Crypto-Miners: This IS your Father's Pulp & Paper Mill



- For utilities with flat to negative load growth- this represents a new customer class.
- Miners looking for cheap power rates
- Moving to Eastern WA, Eastern OR, MT
- Chelan PUD
 - Total load requests exceed 300 MW
- On boarding new Crypto Miners in an intentional manner
 - HDL Rates
- Be aware of unauthorized mining (residential)

Punch List for Crypto Coin Mining Sector



- Fund field research to identify baseline energy use
(Settle the debate and move past headline grabbing claims)
- Cultivate relationships with this new customer
(Including miners in residential buildings)
- Focus on HVAC and mining equipment efficiency
- Establish best practices
- Train service providers (trade allies) to deliver value to facility operators
- Strive for customers that can navigate market volatility and serve as a long term customer.



QUESTIONS & ANSWERS

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