Why Bitcoin Uses So Much Energy

By: www.ProfitableInvestingTips.com

One of the complaints about Bitcoin is that it sucks up so much energy from the electric grid. A recent estimate of **how much electricity** it takes for mining one Bitcoin is 1,449 kWh (kilowatt hours). This is the average electricity consumption for an American household for fifty days. Here is why Bitcoin uses so much energy. This large amount of energy consumption has to do with the proof-of-work verification system used by Bitcoin. Miners need to solve three “complex math problems” which are actually random problems. The miner who gets the job done first gets paid.

Bitcoin’s Three Complex Mathematical Problems

The three problems a Bitcoin miner needs to solve are the hashing problem, the Byzantine generals problem, and the double-spending problem. At first glance, one might think that someone really smart could do very well at this because they could figure out problems faster than others could. That is not how it works. For example, the Byzantine generals problem is a game theory problem that has no answer that you can calculate. The miner simply has to guess again and again until they, or someone else, gets the answer. Thus, the prize generally goes to the mining operation with the most computers and the fastest computers. The prize goes to the operation which is sucking up the most electricity to run lots of computers and the air conditioning needed to keep the computer components from melting down!

How Miners “Solve” Complex Mathematical Problems

Bitcoin miners use ASICs (application specific integrated circuits) designed to rapidly compute hashes. This means repetitively trying out random numbers in a mathematical formula to get an answer. The answers are then submitted again and again until the miner, or someone else gets the answer. Success in this game comes from how many submissions can be made in a very short period of time and not from any exotic mathematical approach. Thus, supercomputers are not used in this game but rather ranks of similar ASIC-driven computers churning out answers very fast. Thus, the system is designed to use lots of electricity.

How Does Bitcoin Control the Mining of New Tokens?

From what we have described so far, it would seem that a big, efficient Bitcoin mining operation could flood the market with Bitcoin tokens. However, the coding behind Bitcoin fixes an eventual limit to how many tokens can be mined. Bitcoin controls mining by controlling how much a miner earns. First of all, when the number of miners trying to solve the problems for a single token goes up, the target they are aiming for gets smaller. Additionally, Bitcoin periodically cuts what they pay in half, about every four years. The next cut is coming soon which will make mining less profitable per token but not reduce the cost of mining tokens for the miner.

Is There a Way to Reduce Excessive Crypto Mining Energy Expenditure?

The answer is yes and it is used by Ethereum for mining of the Ether token. It is called **staking**. Bitcoin uses a proof of work system, problem solving. Ether uses a proof of stake system. In this way of mining crypto, individuals or companies deposit money, 32 Ether tokens, with Ethereum. They are now stakeholders in the system, validators who process transactions, store data, and new blocks to the blockchain. When a stakeholder vouches for the authenticity of a block, no proof of work is required, and Ether validation does not suck up the amount of electricity from the grid that Bitcoin does.

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