

Sean Hoang

Flynn Mixdorf

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## Bitcoin and Economic Incentives for Renewable Energy

### 1. Recap and Introduction

As discussed in much greater detail in the CP, Bitcoin's recent growth—especially with respect to the institutional market—is not one of the most elaborate Ponzi schemes in financial history, but rather a symptom of the broken financial system<sup>1</sup> which results in the global need for a superior store of value. Now that Bitcoin is large enough, it can now fulfill many of its long standing promises without the looming uncertainty that it could go to zero: an apolitical decentralized financial system; uncompromising security, trust and persistence in the face of global crises; Digital Gold. Be that as it may, as we approach the possibility of hyperbitcoinization<sup>2</sup>, it cannot be overstated the current impact that Bitcoin has on the climate. As Bitcoin itself matures and evolves, Bitcoin mining will continue to be a viable business opportunity and potentially a strategic asset and as such, greater emissions will be inevitable given the current regulatory landscape and public attitude towards Bitcoin as a whole. America and The World as a whole needs to stop fighting against an inevitable change, but instead harness it to build a better future.

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<sup>1</sup> For further reading, I would highly recommend Layered Money by Nik Bhatia

<sup>2</sup> The point where Bitcoin becomes the default system of valuation like how assets are “worth their weight in gold”. Buildings, cars etc. will be measured in how much Bitcoin they are worth.

Specifically in relation to the contents of this paper, the solution I will be discussing in greater detail and am personally a proponent of is the possibility of using Bitcoin mining to subsidize renewable energy. This initiative could potentially expand current renewable energy projects and give a more effective economic incentive than constant tax breaks and subsidies that the U.S Government has been giving for the past X years. There will be discussion on the current regulatory framework that could facilitate or hamper these changes; however, there will be less discussion and speculation about what new laws or actions need to be instituted. I intend for this paper to be a more broad view of the solution space while advocating for the integration of Bitcoin mining and renewable energy. A detailed plan to achieve this integration, albeit being an interesting academic endeavor, is not the paper I intend to write. I will also not be talking about the possibility of renewable energy companies using Bitcoin as capital, ie. the company owning and using Bitcoin as their primary asset. Alternative solutions such as transitioning Bitcoin to Proof of Stake (PoS) or implementing taxes based on energy use will also be discussed. Each section will detail what they propose with an emphasis on their practical impossibility and limitations.

## 2. General Obstacles Towards Success

### 2a. Public Opinion

The largest obstacle towards achieving anything productive in the Bitcoin space, let alone any product or company related to cryptocurrency as a whole, is public perception and sentiment. According to a Pew research study conducted in 2024, “Roughly six-in-ten Americans (63%) say they have little to no confidence that current ways to invest in, trade or use cryptocurrencies are

reliable and safe,” (Faverio et al.). The overall trends found in the study are also consistent with the results from the three previous years’ study. This is especially true after the collapse of FTX, one of the most prominent and infamous crypto scandals in recent history. As a result, 40% of Americans associated crypto with fraud, (CoinCover). Though the scandals of FTX and other crypto brokerages such as Celsius and the rise and dramatic fall of NFTs have little or nothing to do with the principles of Bitcoin, Bitcoin still takes the fall as it is the de facto representative of all crypto currencies.

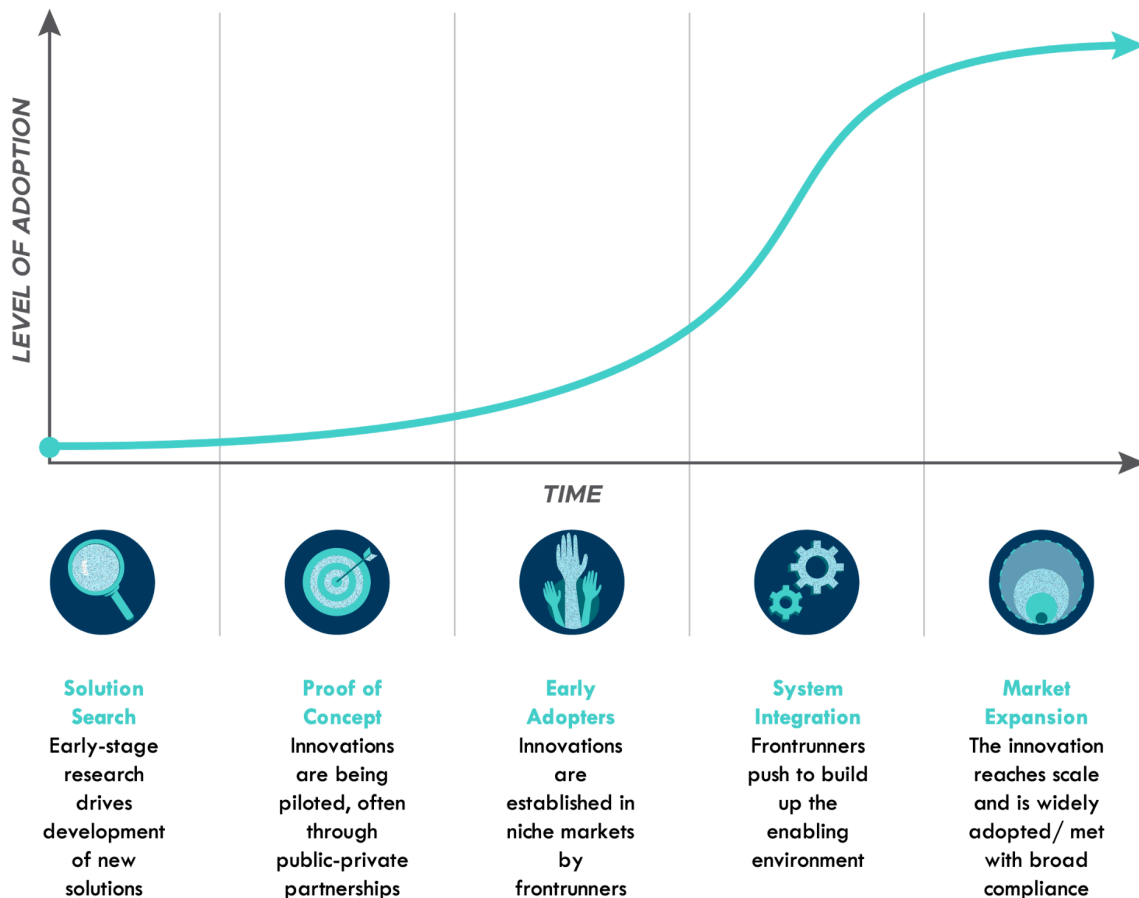
That being said, overwhelmingly positive sentiment boarding on delusional fervor is also not the ideal scenario. This is especially true at the height of a bull market<sup>3</sup> when crypto is being pushed as a “get rich quick scheme” and everyone’s aunts, uncles, cousins and neighbor’s daughter’s brother-in-law suddenly want to get into this “crypto thing”. These unrealistic expectations set many unwitting and uninformed people into financial trouble. According to the previously mentioned Pew research study, 38% of people’s portfolios did worse than expected. The inherent volatility of even Bitcoin where drawdowns historically reached 70% and explosive growth just as or even higher is something that many who were taught to simply invest in a 60/40 portfolio<sup>4</sup> or invest purely in the S&P 500 is simply a phenomenon they were not taught to handle appropriately. Bitcoin is considered stable and “slow” in the crypto community so it's not a stretch to have people who would be happy with a 10% annual return be shocked when a coin goes up 200% in a single day then back down to 50% its original value the next. Overall, the system was a lottery but as the ecosystem becomes more mature and stable over time, this mindset of chasing gains will not be beneficial for the general public as well as the crypto space. Cryptocurrency, especially given the myriad types and potential use cases, is fundamentally

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<sup>3</sup> Market characterized by rising prices. Opposite is a “bear market”, characterized by lowering prices

<sup>4</sup> Traditional portfolio where 60% are in stocks and 40% are in bonds.

harder to communicate the importance of in a realistic sense to a lay person than a technology like ChatGPT and others. Where once ChatGPT was a novelty that one can simply “try out” in isolation, cryptocurrencies as a whole are highly dependent on the network of people that use it. In other words, if a cryptocurrency is used by little to no people despite being a good idea in theory, it is much more difficult to convince others of its value. As a result, adoption follows an “S-curve” (see figure below) which starts off slow, quickening in the middle then leveling off in the end.



## 2b. Crypto Legislature

- This section will discuss the obstacles regarding crypto legislature as a whole, building off the public sentiment idea
- Not only will this section discuss laws that are in place but those that were planned by opposing forces
- The end of this section will relate more directly to Bitcoin mining with energy taxes and such not only in America but worldwide
- Most likely going to write off much of world wide crypto laws as an addendum to a paragraph as they are largely the same, with varying degrees of strictness
- Later sections will possibly highlight reduction in regulation in other countries and how crypto companies will take a mass exodus away from unfavorable regulations

## 3. State of Renewable Energy

- This section will discuss the current state of renewable energy
- It will largely be a recap of what was already explained in the CP about stranded energy, subsidize etc.
- Thinking of moving this one after the “not so great solutions section” will give a better name

## 4. Not so great solutions (Will rename to something smarter)

### 4a. Proof of Work (PoW) vs PoS (Proof of Stake)

- This section will discuss the possibility and advantages of Proof of Stake consensus which is a common solution thrown out by the general public as a silver bullet which Bitcoiners are too greedy to use.
- It will cover what the solution proposes, its consequences and why it can't be used practically to fulfill what Bitcoin needs to do for the world economy

## 4b. Energy Tax

- Though this may seem like an easy solution at first, ultimately it does not give the desired outcome.
- The argument here will largely be that of the free market and a little game theory but not really. It's just common sense. The miners will just pack up and leave to other countries willing to let them in, most commonly using fossil fuels
- Example, after China banned bitcoin mining due to “environmental concerns” which is more monetarily motivated, miners moved “underground” to kazakhstan where energy is cheap through fossil fuels, remaining unreported and contributing to global emissions.

## 5. Energy Subsidies Using Mining

### 5a. First we mine, now we craft! (Will change to a better name)

- Brief overview of what bitcoin mining is, the environmental effects and common misconceptions and new details revolving around actual waste usage (THis should have been included in the CP probably but I didn't find the source in time because it came out around a month ago)

### 5b. How does this even work (Terrible name incoming)

- Gives the overall idea
- Gives example of Aluminum in iceland
- Bitcoin miners use the leftover power that renewable energy facilities don't use (Buyer of first resort), then miners cannot use power when demand on the grid is high in return for favorable energy costs

### 5c. Who benefits (Horrendous naming convention)

- Will detail how both parties benefit from this arrangement (miners get slightly less tight margins because of cheap electricity), (power companies can rely less on government subsidies and are economically incentivized to build better facilities

6. I have no idea what to name this section. I do know it will exist and will probably talk about either how I would add to this solution or problems that the solution may face and any other misconceptions about Bitcoin mining as a whole. Great title if I do say so myself

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