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BITCOIN & BITCOIN MINING

WHAT STATE
LEGISLATORS
NEED TO KNOW





Introduction

The digital asset sector is a quickly growing sector, full of innovation and potential. This new industry is changing the monetary system worldwide. Bitcoin, the first and most well-known digital asset, has a market cap of hundreds of billions of dollars and is used worldwide as a store of value and payment method.

America is part of Bitcoin's rapid growth, with companies on the financial side of cryptocurrency as well as Bitcoin mining. These industries have created thousands of jobs and billions of dollars' worth of value. Even those not working in the Bitcoin industry have benefited, as approximately 20 percent of Americans have bought or traded digital assets. As traditional financial institutions continue to adopt Bitcoin and other distributed ledger technologies, this number only looks to increase.

The federal government has yet to pass a framework for regulating digital assets, leaving states to play an important role in promoting innovation through policies that offer regulatory clarity and promote innovation. These have included defining digital assets, reforming money transmission licenses, and supporting Bitcoin mining.

This document explains to state lawmakers the basics of how Bitcoin and Bitcoin mining work. It also provides policy recommendations for lawmakers and offers both simple and more complex policies for promoting Bitcoin and Bitcoin mining in a state.

With these policies, even states who have not been at the forefront of the cryptocurrency space can attract jobs and economic opportunity in these industries.

A Bit About Bitcoin

Bitcoin was the first and remains the most popular form of cryptocurrency in the world. Bitcoin is a private (non-state) digital peer-to-peer currency that was created by a pseudonymous programmer (or group of programmers) known as Satoshi Nakamoto in 2009.

Bitcoin was the first digital currency to implement a number of innovations that made it far more valuable than others at the time. The most important innovation is how transactions - sending Bitcoin from one person to another - are managed and verified. Bitcoin is run on a distributed network of computers rather than through a central entity like a bank, payment processor, or credit card company. These transactions are then stored in data called blocks and linked together, creating a blockchain.

These properties provide a number of advantages. For example, transactions cannot be stopped by a third party, such as a payment processor like PayPal, and it prevents an individual or group of individuals from stealing funds from a central location. All transactions taking place on the Bitcoin blockchain are fully public for all time and immutable, making it difficult to obscure transactions.

To make a transaction with Bitcoin, a user may simply sign their private key (which serves like a password) to broadcast the change to the network and record the change on the digital ledger or blockchain. The network then verifies that this is a legitimate transaction request before moving the money to the broadcasted recipient.

This lack of centralized control has also provided another advantage. Unlike government backed currency, or even other cryptocurrencies, the Bitcoin code only allows for 21 million individual Bitcoins to be created on a designated schedule. As concerns about inflation continue to increase, those transacting with Bitcoin know exactly how many are currently in circulation and how many will ever be in circulation. This has become especially important in developing countries which often don't have currency as strong as the U.S. dollar.

Bitcoin adoption continues to increase across the globe, and the countries that provide the services to allow the purchase of Bitcoin, as well as the creation through mining, stand to reap the rewards.



Bitcoin Mining Makes It Work

If Bitcoin isn't controlled by a centralized network, who is logging all the transactions and allowing people to send Bitcoin to each other? The answer is Bitcoin miners.



Credit: Riot Blockchain

This ranges from miners who use energy, such as flared natural gas, or miners who use excess energy from solar and wind farms that otherwise would never make it to the electricity grid. It has also led to cutting edge developments in immersion cooling technology which uses liquid to cool the mining hardware and increase its efficiency.

Mining has increased dramatically in the United States, accounting for approximately 30 percent of all mining. This increase was primarily due to China banning individuals and businesses from mining Bitcoin. The communist state was previously a hotbed of cryptocurrency activity, with upwards of 50 percent of all Bitcoin mining activity taking place in the country.

Bitcoin miners use specialized computers, called Application-Specific Integrated Circuits (ASICs), to run the Bitcoin network. These computers “compete” with other computers running the network to solve an equation and enter the information of transactions which creates the next “block” on the blockchain. Running these Bitcoin miners requires a large amount of electricity, meaning the price of energy dramatically affects the profitability of mining. Miners have used a variety of innovative methods to be profitable.





Ultimately, due to the inability of Beijing to control the currency and a desire to implement its own digital currency, China banned Bitcoin from being used or mined in the country. However, the currency continues to be used to this day.

All states can benefit from Bitcoin mining because mining has multiple benefits to offer any grid or energy system. It can monetize excess energy from wind and solar as well as help fund new generation through long term agreements. Mining can help stabilize the grid due to its ability to quickly ramp up and down. And that's not all, mining can help states reduce their emissions by curbing methane that is produced by landfills, agriculture, waste water treatment, and orphaned wells. Miners also create jobs. There are hundreds of Bitcoin mining related businesses in the United States employing thousands of individuals in this fast growing industry. The pay for working at these Bitcoin mining facilities is almost always above median wage, with many individuals earning into the six figures.

These jobs and the economic impact they bring are also often created in rural parts of the country. This is due to the size requirements of the mining facilities and the common nature of stranded energy being located in areas where limited customers will buy that energy.

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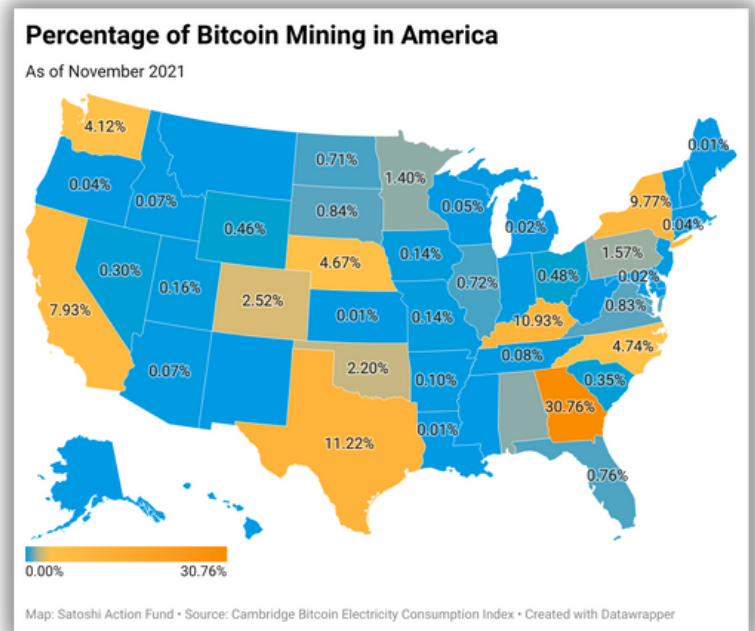
This means that areas that are often struggling the most with jobs and economic opportunity are benefiting the most from Bitcoin mining. Not all states have been positively disposed to Bitcoin mining. Concerns about the amount of energy usage and noise which mining generates have caused backlash at the state and local level. Most notably, the New York Assembly and Senate recently passed legislation that would create a two-year moratorium on all "behind the meter" fossil fuel Bitcoin mining operations. This legislation has yet to be signed into law, but the potential ban has many miners unsure about Bitcoin mining's future in New York. Bitcoin miners also worry this policy could lead to more aggressive anti-bitcoin policies in New York or around the country.

States that are willing to embrace Bitcoin mining, however, will find the opportunity for economic growth and environmental benefits.

What States Can Do to Lead in Bitcoin and Bitcoin Mining

As the federal government has yet to develop a comprehensive framework for the regulation of cryptocurrency, states have taken it on themselves to create the rules of the road. Examples include: how cryptocurrency is defined in state law, and, regulations around the businesses that deal with cryptocurrency. As with many topics left up to the states, there have been different approaches taken toward addressing this industry.

New York was one of the first states to implement comprehensive cryptocurrency regulations, known as a BitLicense, in 2015. New York was ahead of its time in seeing both the potential upsides and dangers with cryptocurrency, but the regulations have been criticized for being costly to comply with and overly restrictive. Only twenty companies have been granted a BitLicense as recently as 2021. New York's reputation with the cryptocurrency community has become even more fraught with the Assembly's attempt to ban Bitcoin mining.



Wyoming, on the other hand, doesn't have nearly the population nor traditional financial sector of New York, yet, has established itself as a leader in the cryptocurrency space. In 2020, Wyoming lawmakers created the select committee on blockchain, financial technology, and digital innovation technology which has continued to study the issue of blockchain technology. The committee's recommendations, which are often adopted into law, have increased Wyoming's competitiveness in the space. Additionally, the state's abundance of natural gas has made Wyoming a player in the Bitcoin mining space.

Many states fall somewhere in between these two different models, with some having basic definitions of virtual currency and others staying silent on the matter.

Even if states are not planning to have cryptocurrency and Bitcoin mining play a large role in their economy, there are still steps they should take to provide legal certainty for any business or individual residing there.

State lawmakers, regardless of where they serve, should look to establish baseline definitions and regulatory clarity for these industries. States that have an energy mix where Bitcoin mining can be profitable should, likewise, look to pass policies that protect the industry and allow for innovative arrangements to use stranded energy assets to protect the environment and create economic value.



Policy 1: Define Virtual Currency

Before the creation of Bitcoin, states didn't need definitions of virtual currency. Other attempts to create a useful virtual currency were mostly unsuccessful or were limited to in-game currencies for popular video games.

Since the creation of Bitcoin and other cryptocurrencies, along with their subsequent adoption, states have needed to create such definitions. Are virtual currencies personal property? Given the current volatility in price, do cryptocurrencies count as investments like stocks and bonds? If so, they are likely subject to capital gains taxes. Or, are cryptocurrencies just like other currencies when purchasing goods and services?

These questions affect not only businesses in the space, but, also everyday individuals who may purchase cryptocurrency through a variety of services.

Given each state's unique role in our federalist system, it's also important that they work together to define virtual currencies in similar ways. It becomes

increasingly difficult to run a cross-state cryptocurrency business if state definitions vary too widely. This can lead to certain services not being offered to consumers.

Takeaways For State Lawmakers

- There are many different types of virtual currency, including cryptocurrencies, with different properties. States should have definitions that capture these properties without being overly prescriptive.
- Having definitions of virtual currency which vary too much from state to state can cause problems for individuals, businesses, and Bitcoin miners. States should look to have similar definitions to one another, borrowing from states which have provided clear guidance.
- States should make sure these definitions don't place extra burdens on individuals and businesses. For example, accepting cryptocurrency as payment shouldn't require a money transmission license or paying capital gains taxes on every transaction.

Policy 2: Create A Blockchain or Bitcoin Mining Council

Many of the states that are leaders in the blockchain and Bitcoin mining space were not natural candidates. Yet, through thoughtful policies, private sector input, and research, many of these states have grown their economies through blockchain and Bitcoin mining.

An effective way to bring these factors together are through government or privately created blockchain or Bitcoin mining councils.

As many legislators are still learning about cryptocurrency and Bitcoin mining, the reports and recommendations provided by these groups have been instrumental in encouraging innovation, leading to jobs and opportunity in these states.

With states that have yet to tackle many of the new issues surrounding cryptocurrency and Bitcoin mining, the government setting up a council can be the first step to address these issues. A council should include policy leaders and experts from the private sector who can provide the background needed for a state to tackle this evolving area of lawmaking head on.

Takeaways For State Lawmakers

- If a state legislature doesn't know where to start to address cryptocurrency and Bitcoin mining, a council that produces reports and recommendations is a good place to start.
- Blockchain or Bitcoin mining councils should strike a balance between government actors and private sector experts. Not only does the private sector have experience that the government doesn't, but many individuals who are involved in this space get involved in the political process for the first time.
- Set tangible goals for these councils, including requiring a certain number of meetings and what the final report should cover.

Policy 3: Pass The Bitcoin Mining Protection Act

One of the primary reasons America is a leader in Bitcoin mining is due to China banning Bitcoin and Bitcoin mining from the country. Overnight, millions of dollars of mining equipment went up for sale or were moved to the United States. China once accounted for nearly 50% of mining, but now, the United States accounts for roughly 30% of all mining.

Bitcoin mining has created tens of millions of dollars of economic value in the United States, especially for rural areas where most Bitcoin mining occurs.

But like China, Bitcoin mining is under threat from state and local governments who want to ban the practice due to either a misunderstanding around its energy usage or noise pollution.

A mining protection act would make clear to individuals and businesses where they could and could not mine Bitcoin.

In residential areas, Bitcoin mining would be allowed as long as undue strain wasn't put on the power grid and noise pollution didn't exceed local limits. In industrial areas, Bitcoin mining would be treated like any other industrial business and would

be legal. These protections will signal to Bitcoin miners that states are open for business.

Takeaways For State Lawmakers

- America is a leader in Bitcoin mining because China banned its use. American states shouldn't make the same mistake, and instead, welcome miners with open arms.
- The intensity of Bitcoin mining should depend on the zoning of an area. This will allow people to mine Bitcoin at home without bothering their neighbors and will let large-scale Bitcoin mining operations know what zoning is required for them to operate without issues.
- A Bitcoin Mining Protection Act doesn't remove power from local governments. They can still set noise pollution regulations and decide which areas are zoned for industrial use. This act would only prevent local governments from singling out Bitcoin miners for more scrutiny.
- This policy reaffirms that localities have control over their zoning policy, but signals support for a new job-creating industry.

Policy 4: Pass an Orphaned Oil Well Bill

Many states around the nation deal with issues caused by oil wells that have been previously abandoned by their owners, also known as orphaned wells. When orphaned wells are discovered, states must then take the responsibility for the cleanup of these wells which can cost as much as \$100,000, or much more in unique circumstances. Furthermore, these orphaned wells often leak methane, which the EPA estimates is 84 times worse than Co₂, and causes as much global warming in America as 2 to 5 million cars per year.

Bitcoin miners can make use of this methane to create Bitcoin. It also turns methane into carbon dioxide which is a much less potent greenhouse gas. Orphaned wells that cannot be used for Bitcoin mining can still be properly closed by the state.

To fund this program, states can use money appropriated to them by the bipartisan infrastructure legislation passed by Congress. There is up to \$1.15 billion available to the states to address the issue of orphaned wells, and partnering with Bitcoin miners can ensure that the money stretches further.

An outline of the program has the state creating a Bitcoin mining fund which allocates some money provided from the federal government. These funds are used as an incentive for Bitcoin miners to start mining on orphaned wells in return for taking the financial responsibility for shutting them down

after a period of time. States can also qualify for additional federal grant funding by meeting certain metrics that are included in the mining partnership legislation.

Takeaways For State Lawmakers

- Orphaned oil wells are a problem for many states. They emit methane and contaminate groundwater. Closing these wells will cost many states tens of millions of dollars.
- Bitcoin miners can turn the methane from these orphaned wells from a liability to an asset by using it to generate energy and create Bitcoin
- Orphaned oil wells that are not suitable for Bitcoin mining can still be closed with other funds.
- States can qualify for additional federal funding for orphaned wells by meeting certain metrics.
- Creating a Bitcoin partnership program will require buy-in from the legislature, Bitcoin miners and the department that runs the current orphaned well program.



Policy 5: Make Microgrids a Reality

One feature of Bitcoin mining is that it creates a reliable customer for new electricity generation and can provide energy back to the main power grid in times of high demand or emergencies. At a time when high demand has put strain on the electricity grid due to lack of generation, Bitcoin can make building out such generation economical while further driving down costs to local ratepayers. One of the legal hurdles that makes building new electricity generation difficult are laws surrounding microgrids. These microgrids produce energy, often green energy, that is generated off of the main power grid.

Microgrids come with a variety of benefits outside of being natural partners with Bitcoin miners. For example, they can often deliver cheaper energy to those living in rural areas, where it's difficult to connect to the main power grid. This excess energy generation can also prove crucial in times of emergencies when there is not enough capacity on the grid, such as heat waves, winter storms, or hurricanes - times where sustaining power can be a matter of life or death.

Clarifying laws about microgrids will make a state's power generation more resilient as well as provide new jobs and economic investment.

Takeaways For State Lawmakers

- Microgrids are small areas that can generate power to serve rural customers or industrial areas that need more power generation.
- Bitcoin miners are a natural ally of microgrids, as they provide a customer for the microgrids the second they come online.
- Microgrids provide important resiliency during times of higher demand, such as heat waves, as well as both natural disasters and cyberattacks.
- Microgrids need clarity in the laws allowing them to operate. Questions about power generation, interconnections and regulation from the Public Service Commission all need to be addressed in legislation.

