

Crypto Council for Innovation

October 7, 2022

Via CFTC Comments Portal: <https://comments.cftc.gov>

Christopher Kirkpatrick
Secretary of the Commission
Commodity Futures Trading Commission
Three Lafayette Centre, 1155 21st Street NW
Washington, DC 20581

Re: Climate-Related Financial Risk RFI

Dear Mr. Kirkpatrick,

The Crypto Council for Innovation (CCI) appreciates the opportunity to provide comments to the Commodity Futures Trading Commission (the “Commission”) in response to the “Request for Information on Climate-Related Financial Risk.”

CCI is an alliance of crypto industry leaders with a mission to communicate the opportunities presented by crypto and demonstrate its transformational promise. CCI members span the crypto ecosystem and include some of the leading global companies and investors operating in the industry. CCI members share the goal of encouraging the responsible global regulation of crypto to unlock economic potential, improve lives, foster financial inclusion, protect national security, and disrupt illicit activity. Achieving these goals requires informed, evidence-based policy decisions realized through collaborative engagement.

This high-level comment letter will focus on item #25, Digital Assets. It outlines that:

- Concerns about crypto’s energy use are misinformed; they often lack context or comparison to other industries and do not consider the social value that crypto offers.
- There are significant energy infrastructure challenges today across the global economy; crypto data centers have unique properties that are already making them a valuable partner in the transition to zero-carbon energy sources.
- Blockchain technology can be used as a tool to bring transparency and accountability to previously opaque and inaccessible climate-related markets.

We provide more detail on each of these points below.

We underscore that the crypto industry is not asking for special treatment. Rather, the crypto industry wants to work collectively with the broader ecosystem. This is important because all types of technology companies, financial institutions, and innovators have data centers that purchase electricity from the grid. It is important to approach the issue from a comprehensive, use-case and industry agnostic perspective regarding data centers. It is critical that the crypto industry isn't arbitrarily punished for its unique transparency. Crypto projects are willing and able to serve as partners, and leaders, in advancing new economic and environmental models.

Any policy action should take a broad view of potential costs, benefits, and risks. Crypto is a generational technology, built for the long-term. We are already seeing its immense social value in action.

As one expert highlights, Bitcoin and the underlying Proof of Work mechanism represent a revolutionary form of public infrastructure¹: “We have public information infrastructure for websites and email, it's called the Internet, but the only public payments infrastructure that we have is cash, as in paper money, and it only works for face-to-face transactions.”

This fundamentally new innovation has opened a new model for peer-to-peer value exchange in the digital economy. Though the first use case was financial, the innovation found in the Bitcoin white paper² has opened a world of possibilities. Conversations about central bank digital currencies (CBDCs)³, digital art and NFTs⁴, digital identity⁵, and decentralized finance⁶ would not be possible without this fundamental transformation in value exchange.

For instance, according to the 2021 Federal Reserve Economic Well-being of Households survey, 60% of individuals using crypto for transactions had an income of less than \$50K. Moreover, 13% did not have a bank account and 27% did not have a credit card. Those with no bank account, no credit card, and no retirement savings were more likely to use “crypto for transactions” than “no crypto.”⁷ Crypto can be a powerful tool for those who are un- or under-served by the traditional financial system.

¹ <https://www.coincenter.org/the-public-internet-needs-public-payments-infrastructure/>

² <https://bitcoin.org/bitcoin.pdf>

³ <https://www.bis.org/publ/bppdf/bispap125.htm>

⁴ <https://time.com/5947720/nft-art/>

⁵ <https://www.coindesk.com/podcasts/coindesk-money-reimagined/getting-internet-identity-right-30-years-on/>

⁶ <https://www.weforum.org/whitepapers/decentralized-finance-defi-policy-maker-toolkit>

⁷ <https://www.federalreserve.gov/publications/files/2021-report-economic-well-being-us-households-202205.pdf>

Recent events have also shown how crypto can be used as a tool for humanitarian assistance. Shortly after Russia’s invasion of Ukraine, over \$100 million in crypto assets was mobilized for much-needed supplies and services. Blockchain-based settlement and record-keeping ensured that donations could be used immediately and that the fund flows were transparent.⁸

More broadly, crypto has been an important tool for human rights. As human rights advocates have recently highlighted, they “have relied on Bitcoin and dollar instruments known as stablecoins, as have tens of millions of others living under authoritarian regimes or unstable economies.”⁹ In economies around the world, crypto provides more choice to consumers in arenas like remittances – and can represent a critical lifeline for individuals who live in economies experiencing hyperinflation. We are seeing this in high levels of adoption in developing and emerging economies.¹⁰

These examples only scratch the surface, and we are only at the beginning – like the internet in the early 1990s. As the technology continues to develop, we anticipate many more use cases, innovation, and positive externalities. It is important that at these nascent stages of the technology, we are able to foster innovation, not suppress it.

Concerns about crypto’s energy use are misinformed; they often lack context or comparison to other industries and do not consider the social value that crypto offers.

First, reports of crypto’s energy use often lack appropriate context. For example, in reporting on crypto, there has been some alarm raised over comparisons to countries or households. For example, the House Letter cites a study that compares Bitcoin’s carbon emissions to that of Greece.¹¹ It notably omits that this represents only 0.19% of global emissions, a figure that is included in the cited study.¹² Moreover, Greece has a population of approximately 10.3 million¹³ versus over 42 million addresses holding Bitcoin.¹⁴ While this number does not represent the total number of individuals (it is likely that many individuals have multiple addresses), it does provide perspective on the scale of the network. As such, comparing a global network to a country with a significantly smaller population is comparing apples to oranges.

Second, crypto and blockchain technology are the underlying infrastructure for a range of uses and applications – currencies, payments networks, digital art, decentralized financial services, digital identity, and more. As one industry expert highlights, “We must remember that credit

⁸ <https://www.coindesk.com/business/2022/03/09/ukraine-has-received-close-to-100-million-in-crypto-donations/>

⁹ <https://www.financialinclusion.tech>

¹⁰ <https://www.ft.com/content/1ea829ed-5dde-4f6e-be11-99392bdc0788>

¹¹ <https://www.ewg.org/sites/default/files/2022-04/Crypto%20letter%20to%20EPA.pdf>

¹² <https://www.sciencedirect.com/science/article/pii/S2542435122000861?via%3Dihub>

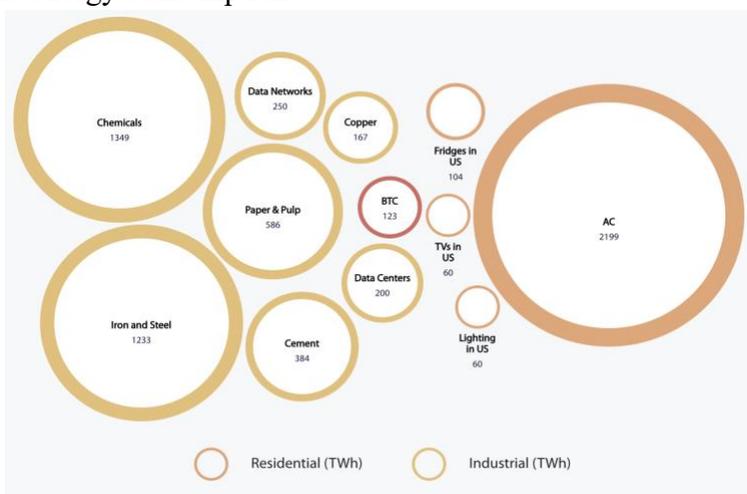
¹³ <https://worldpopulationreview.com/countries/greece-population>

¹⁴ <https://twitter.com/glassnodealerts/status/1555044760741711872?s=20&t=BGOOqQODG8w5oE2XP0tCzg>

card payments still rely on existing, emission-heavy infrastructures like the ACH, Fedwire and SWIFT, as well as the military and diplomatic strength of the U.S. government... Comparing Bitcoin and the traditional banking system [is] like comparing the emissions of the entire coffee industry with a single cafe.¹⁵”

Third, there is limited data on the climate implications of other assets or financial services. The financial system runs on a complex network of offices, technology, data centers, and more, that all consume energy. There are also many physical elements involved in the traditional financial system. In the event that research has been done, there are indications that cash¹⁶ and banking systems¹⁷ have more significant environmental impacts than crypto.

The comparison becomes starker when comparing crypto data centers to traditional commodities mining. Precious and industrial metals, oil and gas, and agricultural goods all have well-documented environmental impacts. The CBECI offers comparisons to industrial use cases as well, with areas like chemicals, iron and steel, and paper and pulp dwarfing the footprint of Bitcoin.¹⁸ Industries such as mining for gold and diamonds have well-documented effects on the environment beyond energy consumption.¹⁹



Fourth, crypto uses a more sustainable energy mix than most countries and industries. The numbers on the energy mix that powers crypto data centers vary – for instance, 39% renewables-

¹⁵ <https://www.coindesk.com/layer2/2022/02/16/bitcoins-energy-problem-is-overblown/>

¹⁶ <https://sites.tufts.edu/digitalplanet/how-green-is-the-greenback-an-analysis-of-the-environmental-costs-of-cash-in-the-united-states/>

¹⁷ <https://docsend.com/view/adwmdeeyfvqwecj2>

¹⁸ *ibid*

¹⁹ <https://www.smithsonianmag.com/science-nature/environmental-disaster-gold-industry-180949762/>

powered according the Cambridge Center for Alternative Finance²⁰ to 58.4% according to the latest Bitcoin Mining Council data²¹ – even the most conservative estimates put crypto mining above average in terms of the sustainability of its energy mix (Notably, North American crypto data centers use renewables substantially more than in other parts of the world²²). Meanwhile, the default U.S. energy mix is 21% renewable according to the U.S. Energy Information Administration.²³ Looking across countries, Bitcoin data centers use a more sustainable energy mix than the European Union²⁴ and the world average of approximately 25%.²⁵

There are significant energy infrastructure challenges today across the global economy; crypto data centers have unique properties that are already making them a valuable partner in the transition to zero-carbon energy sources.

We know there are significant energy infrastructure challenges today. Renewables projects are not able to connect to the grid due to transmission²⁶ and storage²⁷ issues – with over 90% from zero-carbon sources²⁸. This results in stalled or canceled projects. Only 20% of wind power and 16% of solar power projects in interconnection queues have successfully connected to the grid and begun operations in the past decade.²⁹ Those that do succeed are taking longer and longer to be grid-connected.³⁰

Additionally, renewables suffer from intermittency challenges.³¹ This, combined with the remoteness of generation sites³² have led to mismatches in supply and demand. The result is a market where the numbers don't add up. Energy producers often have to curtail production of renewable energy – or even sell the energy at negative prices.³³ In traditional oil and gas production, there are harmful byproducts like flared gas³⁴ that have significant climate negative impacts.

²⁰ <https://www.jbs.cam.ac.uk/faculty-research/centres/alternative-finance/publications/3rd-global-cryptoasset-benchmarking-study/>

²¹ https://bitcoinminingcouncil.com/wp-content/uploads/2022/05/Bitcoin_Letter_to_the_Environmental_Protection_Agency.pdf

²² <https://www.jbs.cam.ac.uk/faculty-research/centres/alternative-finance/publications/3rd-global-cryptoasset-benchmarking-study/>

²³ <https://www.eia.gov/energyexplained/us-energy-facts/>

²⁴ <https://ec.europa.eu/eurostat/web/products-eurostat-news/-/ddn-20220126-1>

²⁵ <https://ourworldindata.org/renewable-energy>

²⁶ <https://www.wired.com/story/renewable-energy-great-grid-slow-down/>

²⁷ <https://www.energy.gov/sites/prod/files/2019/07/f64/2018-OTT-Energy-Storage-Spotlight.pdf>

²⁸ <https://emp.lbl.gov/queues>

²⁹ <https://www.canarymedia.com/articles/transmission/the-us-has-more-clean-energy-projects-planned-than-the-grid-can-handle>

³⁰ <https://www.utilitydive.com/news/doe-grid-interconnection-initiative-i2X-wind-solar/624773/>

³¹ <https://blogs.scientificamerican.com/plugged-in/renewable-energy-intermittency-explained-challenges-solutions-and-opportunities/>

³² <https://www.rff.org/publications/explainers/renewables-101-integrating-renewables/>

³³ <http://www.caiso.com/informed/Pages/ManagingOversupply.aspx>

³⁴ <https://www.worldbank.org/en/programs/gasflaringreduction/gas-flaring-explained>

In fact³⁵:

- Global gas flaring recovery potential could power the Bitcoin network 7.9 times;
- Transmission and distribution losses in the United States alone could power the entire Bitcoin network 2.4 times times;
- Renewables curtailment in China alone could power the Bitcoin network 1.2 times.

Crypto data centers have several unique features that make them an ideal partner for grids facing such challenges³⁶:

(1) *Flexibility*

Crypto data centers are flexible on two key axes:

- (a) They have an *interruptible load*, meaning they can come online or go offline on short notice. That is, they can respond to grid conditions and participate in demand response (DR) programs.
- (b) They are *location agnostic*, so they can be co-located with remote energy sources. This includes stranded energy that cannot be connected to the grid due to transmission and storage challenges.

Research has found that these types of dispatchable data centers reduce stranded power and improve grid cost and stability.³⁷

(2) *Consistency*

Because crypto is a 24/7 endeavor, data centers provide a consistent source of demand. This can help make renewables economically viable, particularly in times where supply exceeds demand, which has been the case with renewables for a variety of reasons. Data centers are economically incentivized to use renewables because it is the lowest cost source.

(3) *Transparency*

Crypto provides a new model for financial services and data centers more broadly. The transparency that the industry brings: (1) data that can be used to inform decision-making and (2) a model for greater accountability and transparency. As crypto grows and represents a larger share of assets, the financial system will become more measurable over time. Analysis of the real-time and transparent data that crypto provides will help take educated steps towards energy efficiency and a greener future.

³⁵ <https://ccaf.io/cbeci/index/comparisons>

³⁶

https://assets.ctfassets.net/2d5q1td6cyxq/2D2BnksJjavw4a6SUvAPwZ/c42a9e3a520b0cc3b230cda3b43eead5/BCEI_White_Paper_.pdf

³⁷ <https://www.osti.gov/biblio/1366452>

Importantly, these arguments are not theoretical. Renewables-focused crypto data centers are already up and running and have taken a variety of approaches. For example, some data centers that utilize stranded flared gas, thus reducing harmful methane emissions.³⁸ Others stabilize grids via controllable loads.³⁹ Others provide a reliable grid-connected source of demand for renewables that may otherwise be curtailed or priced negatively.⁴⁰ Many of these operations are powered by over 90 percent zero-carbon sources.⁴¹ There are also pilots underway to combine renewable investments with investments in storage technologies like batteries.⁴²

Blockchain technology can be used as a tool to bring transparency and accountability to previously opaque and inaccessible climate-related markets.

Academic literature has suggested that the unique combination of decentralization, interconnected autonomy, openness, and intelligence makes blockchain technology a key enabler of a variety of energy-related use cases.⁴³ These include peer to peer energy transaction, efficiency gains in electric vehicle charging, carbon emissions certification and trading, synergy of the multi-energy system, and more.⁴⁴

Once again, these are not theoretical propositions. Initiatives like “regenerative finance” – or ReFi – are working to bring these climate-focused projects to life.⁴⁵ For instance, the Climate Collective mapped over 250 projects spanning carbon credits, biodiversity, energy markets, waste management, and beyond.⁴⁶

Conclusion

Concerns about environmental impact are important and this discussion is critical to industry accountability. As discussed within the paper, industry players are committed to using sustainable energy mixes and are actively investigating ways that the technology may be leveraged to help climate change efforts. However, it is critical that the industry isn't arbitrarily punished for its unique transparency.

³⁸ <https://www.crusoeenergy.com/digital-flare-mitigation>

³⁹ <https://lancium.com/>

⁴⁰ <https://usbitcoin.com/our-campuses/>

⁴¹ <https://www.terawulf.com/our-facilities/>

⁴² <https://www.cNBC.com/2022/04/08/tesla-block-blockstream-to-mine-bitcoin-off-solar-power-in-texas.html>

⁴³

[https://pdfs.semanticscholar.org/b6b1/5293d4f0a36aa155671023062ea3fc22e64a.pdf?_ga=2.98485663.1428055600.1655216566-2003207876.1655216566;](https://pdfs.semanticscholar.org/b6b1/5293d4f0a36aa155671023062ea3fc22e64a.pdf?_ga=2.98485663.1428055600.1655216566-2003207876.1655216566)

⁴⁴ https://www.researchgate.net/publication/330089877_Blockchain-Based_Management_of_Shared_Energy_Assets_Using_a_Smart_Contract_Ecosystem

⁴⁵ <https://www.coindesk.com/layer2/miningweek/2022/03/27/crypto-carbon-can-blockchain-networks-fix-carbon-offsets/>

⁴⁶ <https://kumu.io/climate-collective/web3-climate-map>

Rather, this should be viewed as a tool to facilitate a system that is more accountable and sustainable than ever before. As crypto grows and represents a larger share of assets, the financial system will become more measurable over time. Analysis of the real-time and transparent data that crypto provides will help take educated steps towards energy efficiency and a greener future. This requires a long-term outlook; reactive and rushed policies could skew incentives and have adverse effects.

CCI appreciates the opportunity to comment on these issues and applauds the thoughtful effort the CFTC is undertaking to develop effective and fair regulation. Please do not hesitate to contact us for further information about any of the comments in this document or other inquiries.

Respectfully submitted,

A handwritten signature in black ink, appearing to be 'S. Warren', with a long horizontal flourish extending to the right.

Sheila Warren
Chief Executive Officer
Crypto Council for Innovation