October 7, 2021

The Honorable Nancy Pelosi
Speaker of the House
United States House of Representatives
H-232 The Capitol
Washington, DC 20515

The Honorable Chuck Schumer
Majority Leader
United States Senate
322 Hart Senate Office Building
Washington, DC 20510

The Honorable Kevin McCarthy
Republican Leader
United States House of Representatives
H-204 The Capitol
Washington, DC 20515

The Honorable Mitch McConnell
Minority Leader
United States Senate
317 Russell Senate Office Building
Washington, DC 20510

Dear Majority Leader Schumer, Speaker Pelosi, Minority Leaders McConnell and McCarthy,

As Congressional leadership thinks through changes in the regulatory landscape for crypto, an important part that is often left out are the real negative climate and environmental justice effects, which merit close attention by policymakers. We, the more than 70 climate, economic, racial justice, business and local organizations, write to you today to urge Congress to take steps to mitigate the considerable contribution portions of the cryptocurrency markets are making to climate change and the resulting greenhouse gas (GHG) emissions, environmental, and climate justice impacts it will have.

In 2018, scientists writing in *Nature* warned that Bitcoin's growth alone could single-handedly push global emissions above 2 degrees Celsius within less than three decades. The University of Cambridge Judge Business School's Bitcoin Electricity Consumption Index estimated in May (when Bitcoin was at its peak) that Bitcoin mining will consume more than 129 terawatt-hours of electricity globally this year — more energy than Argentina or Norway. With the market off its May peak, Bitcoin mining is estimated to consume some 91 terawatt-hours of electricity annually — more than Finland, a nation of approximately 5.5 million. The Digiconomist's Ethereum Energy Consumption Index estimates that the Ethereum blockchain will consume 71 terawatt-hours this year, nearly the same as the energy consumption of Colombia. Bitcoin's 2021 energy use has already surpassed its total consumption in 2020. History indicates that this problem will only get worse over time, as Bitcoin's energy consumption increased almost 62-fold from 2015 to March 2021. The GHG emissions from this exorbitant and unnecessary energy consumption is staggering.

Meanwhile, research shows that Bitcoin mining produces 30,700 tonnes of electronic waste (e-waste) annually, comparable to the e-waste of the Netherlands. The minerals often present in e-waste are limited resources and aren't easily recyclable using today's technology (only 17.4 percent of 2019's e-waste was collected and recycled).

The reason for this considerable GHG and e-waste footprint is rooted in the deeply energy-intensive "Proof of Work" process used by the two largest cryptocurrencies, Bitcoin and Ethereum. With Proof

of Work cryptocurrencies, miners compete to validate transactions on their blockchains. In the case of Bitcoin, about every 10 minutes, the first miner to correctly identify a 64-digit hexadecimal number associated with the new block receives 6.25 Bitcoins as a reward — and to do so requires massive computing capacity. Since the Bitcoin network increases the difficulty of this guessing game as more miners participate, miners need [sophisticated data centers](#) running [highly specialized machines](#), combined with cooling systems to prevent overheating. Increased demand for these machines are [exacerbating a global shortage of semiconductors](#). A bipartisan [bill](#) by Senators Maggie Hassan and Joni Ernst has called for a report on how cryptocurrency mining operations are impacting semiconductor supply chains.

The energy usage on the Ethereum blockchain has gotten more intense due to a surge of interest in Non-Fungible Tokens (NFTs)[1]: In August, the NFT marketplace OpenSea alone recorded [$3.4 billion worth of transactions](#). Well before the latest surge of NFT volumes, its climate impact was already the [focus of some controversy](#). While there is a plan to migrate the Ethereum blockchain to Proof of Stake[2], which is far less energy intensive, it is unclear when, if ever, this change will occur.[3] Cryptocurrency mining is also already having a detrimental impact on local environments. Research has estimated that this and other cryptocurrency mining operations in upstate New York have increased residents' electric bills by about [$165 million for small businesses and $79 million](#) for individuals. In Seneca Lake, New York, the private equity firm Atlas Holdings has been utilizing a natural gas plant owned and operated by Greenridge Generation LLC to mine Bitcoin, leading to [protests](#) and a [lawsuit](#) by residents, due to alleged violations of state laws and the risks to Seneca Lake. Residents of Limestone and Jonesborough, Tennessee, are also experiencing noise pollution and [quality of life issues](#) that are [impacting property values](#), due to the noise from local cryptocurrency mining operations.

Following a crackdown on cryptocurrency miners in China, many miners are moving to Texas, due to its deregulated grid, taking away the power that Texans need. Many cryptocurrency miners were already there, like [Whinstone Inc](#). (owned by the publicly traded Riot Blockchain), the largest North American miner. Whinstone is expanding in Texas and will require an [estimated 750 megawatts](#) of power once its expansion is done — enough to power over 150,000 Texas homes at peak demand. Adding more energy-guzzling crypto mining operations to Texas could exacerbate the sorts of blackouts the state already saw during the [extreme cold in February](#) — outages that [reporting](#) shows hit communities of color the hardest. The extreme temperatures behind the blackouts are themselves another consequence of the climate crisis.

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[1] OpenSea defines NFTs as "unique, digital items with blockchain-managed ownership". https://support.opensea.io/hc/en-us/articles/360063450733-What-is-a-Non-Fungible-Token-NFT-

[2] Proof of Stake is a blockchain validation system which limits validators to those who have 32 or more ETH. As noted by the Ethereum Foundation, "Unlike proof-of-work, validators don't need to use significant amounts of computational power because they're selected at random and aren't competing. They don't need to mine blocks; they just need to create blocks when chosen and validate proposed blocks when they're not." https://ethereum.org/en/developers/docs/consensus-mechanisms/pos/

[3] Migrating from Proof of Work cryptocurrency mining to proof of stake cryptocurrency mining decreases the energy consumption and GHG emissions from mining nearly 99 percent. *See, e.g.*, https://www.nbcnews.com/tech/tech-news/cryptocurrency-goes-green-proof-stake-offer-solution-energy-concerns-rcna1030; https://blog.ethereum.org/2021/05/18/country-power-no-more/.

Other power plants across the country are repowering to mine Bitcoin as well. Stronghold Digital Mining has purchased and begun mining at three coal waste plants in Pennsylvania, while Marathon Digital is partnering with once-struggling coal-fired plants in Montana.

As the crypto markets expand, so does the sophistication of financial products that enable crypto miners to manage their risks, even with extreme price volatility. For example, crypto trading firms like Genesis Trading (a part of the crypto conglomerate the Digital Currency Group) have created bespoke products for crypto miners. These financial products will likely enable the marketplace to grow and withstand periods of volatility, making cryptocurrency mining more viable, despite the climate impact.

As Congress contemplates legislation for cryptocurrencies, we urge you to consider the impacts that Proof of Work mining is having on the climate, clean water, and environmental justice. As you explore legislative and regulatory responses to ensure investor protection in the industry, it is critical that you also consider the financial stability risks that climate change presents — and how Proof of Work mining is exacerbating those risks.

Sincerely,

National and International organizations:

350.org
Action Center on Race and the Economy
Americans for Financial Reform
Anthropocene Alliance
Aytzim: Ecological Judaism
Businesses for a Livable Climate
CatholicNetwork US
Clean Energy Action
Climate Finance Action
Climate Hawks Vote
CODEPINK
Council on Intelligent Energy & Conservation Policy (CIECP)
Earth Action, Inc.
EcoEquity
Evergreen Action
Food & Water Watch
Friends of the Earth US
Future Coalition
Haiti Cholera Research Funding Foundation Inc.. USA
Institute for Agriculture and Trade Policy
Institute for Policy Studies Climate Policy Program
International Indigenous Youth Council Los Angeles Chapter
National Community Reinvestment Coalition
North American Climate, Conservation and Environment(NACCE)
NYC Grassroots Alliance

Oil Change International
Open Markets Institute
Progressive Democrats of America
Public Citizen
RapidShift Network
Revolving Door Project
Sierra Club
Small Business Alliance
Sunrise Project
System Change Not Climate Change
The Climate Mobilization
Vegan Flag
Zero Hour

State and Local organizations:

Alliance for a Green Economy
California Businesses for a Livable Climate
Call to Action Colorado
Citizens' Climate Lobby-Rochester
Coastal Research and Education Society of Long Island
Colorado Businesses for a Livable Climate
Committee to Preserve the Finger Lakes
Denizens of the Biosphere
Empower our Future - Colorado
Extinction Rebellion San Francisco Bay Area
Grassroots Environmental Education
I-70+ Vasquez Boulevard Superfund Community Action Group
Local Progress NY
Long Island Progressive Coalition
Mid-Missouri Peaceworks
Montbello Neighborhood Improvement Association
Nassau Hiking & Outdoor Club
New Mexico Climate Justice
North Range Concerned Citizens
Occupy Bergen County (New Jersey)
Residents Allied for the Future of Tioga (RAFT)
SanDiego350
Seneca Lake Guardian, a Waterkeeper Alliance Affiliate
South Shore Audubon Society
Spirit of the Sun
Stop the Algonquin Pipeline Expansion (SAPE)
Syracuse Peace Council
Texas Campaign for the Environment
The Green House Connection Center
Unite North Metro Denver

Wall of Women
350 Butte County
350 Everett
350 Tacoma
350Brooklyn
350NYC
350PDX

cc:
The Honorable Rostin Behnam
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The Honorable Dr. Janet L. Yellen

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