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ONE HUNDRED SEVENTEENTH CONGRESS

Congress of the United States
House of Representatives

COMMITTEE ON ENERGY AND COMMERCE
2125 RAYBURN HOUSE OFFICE BUILDING
WASHINGTON, DC 20515-6115

Majority (202) 225-2927
Minority (202) 225-3641

August 17, 2022

Mr. Fred Thiel
Chief Executive Officer and
Chairman of the Board of Directors
Marathon Digital Holdings
1180 North Town Center Drive, Suite 100
Las Vegas, NV 89144

Dear Mr. Thiel:

Pursuant to Rules X and XI of the House of Representatives, the Committee on Energy and Commerce is continuing its review of the environmental impacts and energy consumption of certain blockchain technology. Specifically, the Committee is examining the environmental impacts and energy consumption of blockchains that use a proof of work (PoW) consensus mechanism to record and validate transactions and mine for new cryptocurrency. Blockchain technology holds immense promise that may make our personal information more secure and economy more efficient. However, the energy consumption and hardware required to support PoW-based cryptocurrencies may, in some instances, produce severe externalities in the form of harmful emissions and excess electronic waste (e-waste). As one of the largest PoW cryptomining companies operating in North America, we are writing to learn more about the environmental and energy impacts of Marathon Digital Holdings' (Marathon) operations.

Earlier this year, the Subcommittee on Oversight and Investigations held a hearing to examine the impacts of PoW-based blockchains and cryptomining. While it was clear from testimony that certain cryptomining companies can provide a flexible load, which may present potential benefits to grid stability and the deployment of renewable energy sources, it is also evident that these cryptomining activities pose certain risks.[1] PoW cryptomining facilities consume an immense amount of energy and require access to stable baseload power sources to achieve peak profitability.[2] Although some PoW cryptominers mitigate their energy consumption needs by investing in renewable energy projects that can offset a portion of the

[1] House Committee on Energy and Commerce, *Hearing on Cleaning Up Cryptocurrency: The Energy Impacts of Blockchains*, 117th Cong. (Jan. 20, 2022).

[2] River Financial, *Is Bitcoin Mining Profitable?* (https://river.com/learn/is-bitcoin-mining-profitable/) (accessed April 13, 2022).

energy requirements and better balance the load on the power grid, some of the largest cryptomining companies in the country continue to rely primarily on the electrical grid for their power source. This can drive up peak demand and may even breathe new life into fossil fuel generators. [3]

Your company is one of the largest cryptomining companies in North America.[4] In 2020, it partnered with Beowulf Energy to establish a mining facility powered by the 105-megawatt coal-powered Hardin Generating Station in Montana.[5] Before the deal, Hardin was an aging coal power plant originally set to be decommissioned, but it was revitalized by demand from cryptominers, including Marathon.[6] Coal-fired power plants account for a disproportionate share of the energy sector's carbon pollution.[7] While it was encouraging to see Marathon's announcement that it would be phasing out its Montana facility and redeploying its ASICs at facilities powered by low- or zero-carbon energy to become carbon neutral, we would like to understand more about Marathon's plans to phase out this facility and its efforts to ensure it does not take actions moving forward that extend the lifespan of coal power plants.[8]

We would also like to better understand certain concerns expressed around e-waste. As the Committee heard at its January 20, 2022, hearing, many PoW mining operations largely rely on application specific integrated circuits (ASICs) that may quickly become obsolete and are difficult to repurpose once they reach end of life.[9] There are numerous factors that can influence the longevity of ASICs, including local weather, ambient particulates, and cooling and air filtration.[10] According to a May 2, 2022, letter addressed to Environmental Protection Agency (EPA) Administrator Michael Regan and co-signed by Marathon, ASICs are economically viable for approximately three to five years, after which they may be disposed of or resold on the

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[3] *See* note 1; *Bitcoin-mining power plant raises ire of environmentalists*, Associated Press (Oct. 16, 2021); *Bitcoin Mining with Stranded Energy [Video]*, Bloomberg Quicktake (Jul. 1, 2021); *Coal-Powered Marathon Digital Promises Greener Bitcoin Data Center; Elon Musk Talks to US Miners About Renewable Usage*, Datacenter Dynamics (May 25, 2021).

[4] Marathon Digital Holdings, *About Marathon* (https://marathondh.com/about/) (accessed Apr. 27, 2022).

[5] *Bitcoin Miner Marathon Signs For Coal-Fired Electricity in Montana*, Datacenter Dynamics (Oct. 16. 2020); Marathon Digital Holdings, *Our Facilities* (https://marathondh.com/our-facilities/) (accessed Apr. 27, 2022).

[6] *Bitcoin Miner Marathon Signs For Coal-Fired Electricity in Montana*, Datacenter Dynamics (Oct. 16. 2020)

[7] Environmental Protection Agency, *Sources of Greenhouse Gas Emissions* (July 27, 2021) (https://www.epa.gov/ghgemissions/sources-greenhouse-gas-emissions#t1fn3).

[8] Marathon Digital Holdings, *Marathon Digital Holdings Announces Intent to Transition Hardin, Montana Bitcoin Mining Operations to More Sustainable Power Sources* (Apr. 5, 2022) (press release).

[9] *See* note 1; House Committee on Energy and Commerce, Responses of Ari Juels to Questions for the Record, *Hearing on Cleaning Up Cryptocurrency: The Energy Impacts of Blockchains*, 117th Cong. (Jan. 20, 2022).

[10] *See* note 1; House Committee on Energy and Commerce, Responses of John Belizaire to Questions for the Record, *Hearing on Cleaning Up Cryptocurrency: The Energy Impacts of Blockchains*, 117th Cong. (Jan. 20, 2022).

secondary market.[11] While advancements in the efficiency of ASICs have reduced the energy demand per ASIC, the competitive nature of PoW cryptomining incentivizes the deployment of additional ASICs as they become more efficient to maintain or improve cryptominers' relative computing power—a cycle that may further increase the amount of future e-waste without reducing energy consumption.[12]

Marathon's footprint is growing rapidly. In early April, Marathon reaffirmed plans to increase its deployed ASICs to approximately 199,000 by early 2023.[13] This represents a significant increase in the number of deployed ASICs from the 35,510 deployed as of March of this year.[14] While deploying tens of thousands more ASICs will improve Marathon's ability to mine for cryptocurrency, it also will vastly increase the amount of future e-waste generated by Marathon's operations.

Given the existential threat posed by the climate crisis, we are deeply concerned about efforts like this that increase demand for fossil fuels, with the potential to put new strain on our energy grid. According to the U.N. Intergovernmental Panel on Climate Change, the world must significantly reduce greenhouse gas (GHG) pollution over this decade to avoid the most catastrophic impacts of the climate crisis.[15] That is why this Committee has prioritized efforts that will help the United States reduce GHG pollution by 50 percent from 2005 levels by 2030, and reach net zero GHG pollution no later than 2050.[16] While blockchain technology is emerging as a potentially important tool in fighting climate change, increasing demand on the grid and burning more fossil fuels to power PoW cryptomining facilities only serves to undermine the potential climate benefits of blockchain technology and hold us back from achieving our climate pollution reduction goals.

To address the concerns outlined above and support the Committee's ongoing oversight of the environmental and energy impacts of blockchain technologies, please provide the following requested information by August 31, 2022.

1. Please provide details of Marathon's plans to phase out its Montana facility, as well as any policies it has developed or other efforts it is undertaking to ensure its operations do not revitalize additional coal power plants.

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[11] *How to prolong your ASIC miner's lifespan*, Medium (Nov. 23, 2021); Compass Mining, *How long do ASICs last?* (Apr. 29, 2021) (compassmining.io/education/how-long-do-asics-last/#:~:text=A%20well%20maintained%20ASIC%20typically,longer%20is%20not%20unheard%20of.); Letter from Michael Saylor, Chairman and Chief Executive Officer, MicroStrategy, et al., to Administrator Michael S. Regan, Environmental Protection Agency (May 2, 2022).

[12] *See* note 9.

[13] Marathon Digital Holdings, *Marathon Digital Holdings Announces Bitcoin Production and Mining Operation Updates for March 2022* (Apr. 4, 2022) (press release).

[14] *Id.*

[15] Intergovernmental Panel on Climate Change, *Climate Change 2022: Impacts, Adaptation and Vulnerability* (Feb. 27, 2022).

[16] *See*, e.g., H.R. 1512; H.R. 5376.

2. How much energy did each of Marathon's cryptomining facilities use during 2021?

    a. Given Marathon's growth plans, how much is expected to be used by each facility by the during 2022 and annually thereafter, including newly built and expanded facilities?

    b. In your response, please specify the energy sources used by utilities serving each of your facilities, and the energy mix of each.

    c. Please also specify the proportion of energy used that is offset with renewable energy credits.

3. The May letter to EPA, co-signed by the company described additional computing activities, such as high-performance compute (HPC), that can be undertaken at idle mining facilities.[17] Describe the extent to which Marathon devotes computing power from its deployed fleet to activities other than cryptomining. In your response, please include:

    a. The maximum, minimum, and average daily percentage of Marathon's deployed fleet devoted to activities other than cryptomining; and

    b. The maximum, minimum, and average amount of time daily that Marathon's cryptominers are devoted to non-cryptomining computing.

4. For each type of miner within Marathon's fleet, please provide a description of such miner including:

    a. Whether Marathon primarily or intermittently devotes such miners to non-cryptomining activities and, if so, the proportion of time spent on non-cryptomining activities;

    b. A list of all the cryptocurrencies that Marathon mines using such miners; and

    c. The quantity of each type of miner within Marathon's fleet.

5. Please describe what analysis, if any, Marathon has conducted regarding the company's scope 1 and scope 2 emissions. If the company estimated its scope 1 and scope 2 emissions, please provide a detailed analysis of the methodology used to estimate the company's scope 1 and scope 2 emissions. If the company has not conducted any analysis of its scope 1 and scope 2 emissions, explain why not, including responses to the following:

[17] Letter from Michael Saylor, Chairman and Chief Executive Officer, MicroStrategy, et al., to Administrator Michael S. Regan, Environmental Protection Agency (May 2, 2022).

a. Why has the company chosen not to evaluate its scope 1 and scope 2 emissions?

b. How does the company plan to achieve or has the company achieved net-zero emissions without evaluating its scope 1 and scope 2 emissions?

c. Has the company conducted any analysis to ascertain the carbon footprint of its operations and facilities? If so, please provide this analysis.

6. Please describe the extent to which Marathon relies on renewable energy credits (RECs) or certificates to offset its carbon emissions. If Marathon does use RECs, please include in your response:

a. The number of RECs purchased and retired each year;

b. The percentage of RECs originating in the same state as Marathon's facilities;

c. A brief description of the renewable energy generators Marathon's RECs originated from, including the percentage of Marathon's RECs originating from each renewable energy generator; and

d. A description of the methodology Marathon uses to determine the estimated emissions derived from its energy consumption and the number of RECs needed to offset those emissions.

7. In the last 12 months, how many days has Marathon curtailed cryptomining to support grid stability? Over the next 12 months, how many days does Marathon expect it will need to curtail cryptomining at its facilities? In your response, please include:

a. The observed or anticipated duration of curtailments by facility;

b. The amount of energy consumption reduced by each past curtailment or the anticipated reduction of energy consumption for future curtailments; and

c. The extent to which each curtailment was done voluntarily or required by mandatory agreements with Marathon's utilities. In your response, please summarize the terms of any such agreement, including any compensation arrangements and any payments, credits, or other compensation received from curtailing cryptomining.

8. In 2021, what was the average cost per megawatt hour and per megawatt hour profit at each of Marathon's cryptomining facilities?

9. By the end of December 2021, how many ASICs was Marathon operating at its facilities? How many ASICs does Marathon expect to deploy at each of its facilities by the end of December 2022? Please also specify the following:

    a. Average lifespans of deployed ASICs for each facility;

    b. Number of deployed ASICs replaced each year;

    c. If the lifespan of ASICs at different facilities differs greatly, whether Marathon has determined an underlying cause; and

    d. Average energy demand and hashrate per ASIC model.

10. While the May letter to EPA contends that there is currently no "evidence of huge quantities of miners in junkyards," this concern remains valid given the rapid expansion of the industry and the aging ASICs fleet.[18] We would like to better understand how Marathon addresses its decommissioned ASICs.

    a. How many of Marathon's replaced or decommissioned ASICs are resold? How many become e-waste that is recycled, sent to landfills, or disposed of in other ways?

    b. How does Marathon ensure any e-waste it generates is disposed of safely, both from an environmental and human health perspective?

    c. Does Marathon provide disposal services for decommissioned or replaced ASICs it hosts for third parties? Please describe these services if they differ from how Marathon manages its own e-waste.

11. The May letter claimed that "Bitcoin ASICs are almost entirely recyclable" and that individual components can be resold.[19] Please specify which individual ASIC components Marathon currently recycles and which individual components Marathon resells. In your response, include the following:

    a. A list of all individual ASIC components that Marathon recycles;

    b. A list of all individual ASIC components that Marathon resells;

    c. For components that are both recycled and resold, a breakdown of the proportion that are recycled and resold; and

[18] *Id.*

[19] *Id.*

d. What channels Marathon currently uses to recycle or resell its discarded ASICs and ASIC components.

In addition to answering the questions above, we request that Marathon provide a briefing to Committee staff no later than September 17, 2022.

An attachment to this letter provides additional information about responding to the Committee's request. Thank you for your prompt attention to this matter. If you have any questions, please contact Rebekah Jones and Austin Flack of the Committee staff at (202) 225-2927.

Sincerely,

Frank Pallone, Jr.
Chairman

Bobby L. Rush
Chairman
Subcommittee on Energy

Diana DeGette
Chair
Subcommittee on Oversight
and Investigations

Paul D. Tonko
Chairman
Subcommittee on Environment
and Climate Change

Attachment

cc: The Honorable Cathy McMorris Rodgers
Ranking Member
Committee on Energy and Commerce

The Honorable Fred Upton
Ranking Member
Subcommittee on Energy

The Honorable H. Morgan Griffith
Ranking Member
Subcommittee on Oversight and Investigations

The Honorable David B. McKinley
Ranking Member
Subcommittee on Environment and Climate Change