

December 2, 2021

Jeffrey Kirt
CEO
Greenidge Generation Holdings, Inc.
590 Plant Rd
Dresden, NY 14441

Dear Mr. Kirt:

I write seeking information about Greenidge Generation Holdings, Inc. (Greenidge)'s power production and Bitcoin mining operations in New York State, and the impact these operations may be having on climate change, the local environment, and the cost of electricity for retail consumers. The Greenidge Generation power plant on the shores of Seneca Lake in Dresden, New York is one of the largest Bitcoin mining facilities in the U.S.¹ Formerly a coal plant that operated from 1937 through 2011, the plant was purchased in 2014 by Atlas Holdings, a private investment firm that "buys and transforms distressed industrial companies."² After bringing the plant back online in 2017 as a natural gas plant, with the intention of generating power for public consumption, Greenidge soon began producing electricity to mine Bitcoin.³

Cryptocurrency trading has grown exponentially since first introduced over a decade ago.⁴ Mining operations for Bitcoin, the largest cryptocurrency by market cap, are increasingly moving onshore, with the United States' share of global mining increasing from 4% in August 2019 to 35% in July 2021⁵ – meaning that over a third of the global computing power dedicated

¹ Forbes, "Bitcoin Mining Can Be Profitable, If You Generate the Power," Robert Anzalone, August 16, 2020, <https://www.forbes.com/sites/robertanzalone/2020/08/13/bitcoin-mining-can-be-profitable-if-you-generate-the-power/>.

² Greenidge Generation, "Our Story," <https://greenidge.com/our-story/>; Forbes, "Bitcoin Mining Can Be Profitable, If You Generate the Power," Robert Anzalone, August 16, 2020, <https://www.forbes.com/sites/robertanzalone/2020/08/13/bitcoin-mining-can-be-profitable-if-you-generate-the-power/>.

³ Grist, "This power plant stopped burning fossil fuels. Then Bitcoin came along," Jessica McKenzie, May 06, 2021, <https://grist.org/technology/bitcoin-greenidge-seneca-lake-cryptocurrency/>; The Chronicle-Express, "Power plant to add data center," John Christensen, July 31, 2019, <https://www.chronicle-express.com/story/news/2019/07/31/power-plant-to-add-data/4575073007/>.

⁴ MIT Technology Review, "The Cryptocurrency Market Is Growing Exponentially," Emerging Technology from the arXiv, May 29, 2017, <https://www.technologyreview.com/2017/05/29/151496/the-cryptocurrency-market-is-growing-exponentially/>.

⁵ Cambridge Bitcoin Electricity Consumption Index, "Bitcoin Mining Map," Cambridge Centre for Alternative Finance, April 2021, https://cbeci.org/mining_map; CoinMarketCap, "Cryptocurrency Prices, Charts And Market Capitalizations," <https://coinmarketcap.com/>.

to mining Bitcoin is now drawn from miners in the U.S, in part due to a government crackdown in China.⁶

Bitcoin's network is secured through a "proof of work" algorithm, which involves miners using computers to verify transactions by guessing a string of numbers, with the winning miner being rewarded in new Bitcoin.⁷ As more miners compete and the value of Bitcoin increases, solving this puzzle becomes increasingly difficult, requiring more computational power and greater energy consumption.⁸ Bitcoin's estimated annual power consumption increased more than threefold between the beginning of 2019 and May 2021, rivaling the total energy usage of countries such as Denmark, Chile, and Argentina, and comparable to the entire energy consumption of Washington State.⁹

Given the extraordinarily high energy usage and carbon emissions associated with Bitcoin mining, mining operations at Greenidge and other plants raise concerns about their impacts on the global environment, on local ecosystems, and on consumer electricity costs. Therefore, as you move forward with plans to expand operations in New York and South Carolina,¹⁰ I seek information on Greenidge's operations and the resulting impacts on the environment and local communities.

In May 2021, Greenidge announced that it was purchasing voluntary carbon offsets from a portfolio of U.S. greenhouse gas reduction projects to operate "an entirely carbon neutral bitcoin mining operation."¹¹ In July 2021, Greenidge announced that it would invest profits from its Bitcoin mining operation in upstate New York to expedite the closure of an existing, forty-year-old coal ash landfill in the Finger Lakes region and build a new solar farm at the site.¹² You have stated that "Bitcoin mining at Greenidge is already a model for the industry in that we are

⁶ The Wall Street Journal, "U.S. Takes Bitcoin Mining Crown After China Crackdown," Caitlin Ostroff, October 27, 2021, <https://www.wsj.com/articles/u-s-takes-bitcoin-mining-crown-after-china-crackdown-11635327002>.

⁷ CoinDesk, "What Is Proof-of-Work?," Alyssa Hertig, December 16, 2020, <https://www.coindesk.com/tech/2020/12/16/what-is-proof-of-work/>.

⁸ The Wall Street Journal, "Bitcoin Miners Are Giving New Life to Old Fossil-Fuel Power Plants," Brian Spegele and Caitlin Ostroff, May 21, 2021, <https://www.wsj.com/articles/bitcoin-miners-are-giving-new-life-to-old-fossil-fuel-power-plants-11621594803>.

⁹ *Id.*; The New York Times, "Bitcoin Uses More Electricity Than Many Countries. How Is That Possible?" Jon Huang, Claire O'Neill and Hiroko Tabuchi, September 3, 2021, <https://www.nytimes.com/interactive/2021/09/03/climate/bitcoin-carbon-footprint-electricity.html>.; The Wall Street Journal, "Bitcoin Miners Are Giving New Life to Old Fossil-Fuel Power Plants," Brian Spegele and Caitlin Ostroff, May 21, 2021, <https://www.wsj.com/articles/bitcoin-miners-are-giving-new-life-to-old-fossil-fuel-power-plants-11621594803>.

¹⁰ Greenidge Generation, "Greenidge Generation Announces Letter of Intent to Expand Bitcoin Mining Operation to Site in South Carolina," Greenidge Generation Holdings Inc., July 2, 2021, <https://greenidge.com/wp-content/uploads/2021/09/Greenidge-South-Carolina-Announcement-7.2.21-PRN-Final.pdf>.

¹¹ Greenidge Generation, "Greenidge Generation Bitcoin Mining Operation To Be Carbon Neutral in 2021 and Beyond," Greenidge Generation Holdings Inc., July 2, 2021, <https://greenidge.com/greenidge-generation-bitcoin-mining-operation-to-be-carbon-neutral-in-2021-and-beyond/>.

¹² Greenidge Generation, "Greenidge Generation Takes First Step in Renewable Energy Investment Program," Greenidge Generation Holdings Inc., July 29, 2021, <https://greenidge.com/wp-content/uploads/2021/09/Greenidge-Landfill-Closure-Solar-Project-Announcement-7.29.21.pdf>.

advancing this emerging financial platform for people across the world in a manner that fully protects our environment.”¹³

According to New York Department of Environmental Conservation records, however, your plant’s greenhouse gas emissions increased nearly tenfold from 2019 to 2020.¹⁴ The computers at your facility “operate 24/7, burning through an astounding amount of real energy, and producing real pollution.”¹⁵ In 2020, the plant emitted the equivalent of over 220,000 metric tons of carbon dioxide, comparable to the emissions of 50,000 cars.¹⁶ In March 2021, Greenidge announced plans to more than double its mining capacity on Seneca Lake from 19 MW of mining capacity to 41 MW by July 2021, to double that again to 85 MW by the end of 2022,¹⁷ and to reach a total company-wide capacity of 500MW by 2025 via expansion beyond the initial operation in Dresden, New York, including a Spartanburg, South Carolina facility where you plan to commence operations by the end of this year.¹⁸ Your company claims carbon neutrality through the purchase of carbon offsets,¹⁹ but its Dresden facility is still putting hundreds of thousands of metric tons of carbon dioxide into the atmosphere that would not be emitted otherwise.

In addition to your plant’s energy usage and emissions, local residents have also raised concerns about its impacts on wildlife and water quality, including the large volume of water intake, the withdrawal method of the intake, and the temperature of water outflow.²⁰ According to Mary Anne Kowalski, President of the Committee to Preserve the Finger Lakes, “Greenidge has permits that allows them to withdraw 139 million gallons of water a day from Seneca Lake, vacuuming up fish and fish eggs and larva, to cool the turbines and discharge the heated water into the Lake.”²¹ One local petitioner told a court that the Keuka Lake Outlet, a trout stream and

¹³ *Id.*

¹⁴ Grist, “This power plant stopped burning fossil fuels. Then Bitcoin came along.” Jessica McKenzie, May 06, 2021, <https://grist.org/technology/bitcoin-greenidge-seneca-lake-cryptocurrency/>.

¹⁵ NBC News, “Some locals say a bitcoin mining operation is ruining one of the Finger Lakes. Here's how.” Gretchen Morgenson, July 5, 2021, <https://www.nbcnews.com/science/environment/some-locals-say-bitcoin-mining-operation-ruining-one-finger-lakes-n1272938>.

¹⁶ Grist, “This power plant stopped burning fossil fuels. Then Bitcoin came along.” Jessica McKenzie, May 06, 2021, <https://grist.org/technology/bitcoin-greenidge-seneca-lake-cryptocurrency/>.

¹⁷ Business Wire, “Bitcoin Miner Greenidge Generation Holdings Inc. and Support.com, Inc. (Nasdaq: SPRT) Announce Merger Agreement,” Business Wire, Inc., March 22, 2021, <https://www.businesswire.com/news/home/20210322005353/en/Bitcoin-Miner-Greenidge-Generation-Holdings-Inc.-and-Support.com-Inc.-Nasdaq-SPRT-Announce-Merger-Agreement>.

¹⁸ Greenidge Generation, “Greenidge to Expand Bitcoin Mining Fleet with Order of Latest Generation Mining Machines from Bitmain,” Greenidge Generation Holdings Inc., September 15, 2021, <https://greenidge.com/wp-content/uploads/2021/09/Greenidge-Bitmain.pdf>.

¹⁹ Greenidge Generation, “Greenidge Generation Bitcoin Mining Operation To Be Carbon Neutral in 2021 and Beyond,” Greenidge Generation Holdings Inc., July 2, 2021, <https://greenidge.com/greenidge-generation-bitcoin-mining-operation-to-be-carbon-neutral-in-2021-and-beyond/>.

²⁰ Grist, “This power plant stopped burning fossil fuels. Then Bitcoin came along.” Jessica McKenzie, May 06, 2021, <https://grist.org/technology/bitcoin-greenidge-seneca-lake-cryptocurrency/>.

²¹ FingerLakes1.com, “Committee to Preserve the Finger Lakes elects new officers, focuses on Greenidge Power Plan operations,” FL1 News, August 17, 2020, <https://www.fingerlakes1.com/2020/08/17/committee-to-preserve-the-finger-lakes-elects-new-officers-focuses-on-greenidge-power-plan-operations/>.

fishery that the Greenidge water discharge flows into, and which subsequently empties into Seneca Lake, has been overtaken by “sludge, algae, insects, dead fish, and foul smells.”²²

Cryptomining facilities’ energy consumption is also causing significant increases in energy costs for local small businesses and residents, and I am concerned about this potential impact of Greenidge’s actions. Cryptomining in the city of Plattsburgh, New York reportedly resulted in residential electricity bills that were “up to \$300 higher than usual” in the winter of 2018, leading the city to introduce the nation’s first 18 month moratorium on new cryptomining operations.²³ A recent study estimates that “the power demands of cryptocurrency mining operations in upstate New York push up annual electric bills by about \$165 million for small businesses and \$79 million for individuals.”²⁴

Finally, Greenidge’s vertically integrated Bitcoin mining and power generation facility is also serving as a model for other companies seeking to acquire aging fossil fuel plants for the purposes of making the energy generation profitable,²⁵ a trend that is likely to accelerate after China’s crackdown on cryptomining. Around 500,000 formerly Chinese miner rigs are looking for new locations, potentially in the U.S., which would push North America closer to 40% of the global collective computing power of the Bitcoin network within the next year.²⁶ States like Texas with relatively cheap electricity costs are experiencing an influx of cryptomining companies,²⁷ raising concerns about the state’s unreliable electricity market and the potential for cryptomining to add to the stress on the state’s power grid.²⁸

To address our concerns about the impact of Greenidge’s operations on the global climate and local communities, and in order for us to better understand how you intend to implement and maintain your public commitments to environmental quality, I ask that you respond in writing with answers to the following questions no later than December 17.

1. How much does Greenidge’s Dresden, New York plant currently emit annually in terms of metric tons of carbon dioxide equivalent? What is the current annual energy production of the plant?
2. What is the annual electricity consumption used for Bitcoin mining at the Dresden facility?

²² Grist, “This power plant stopped burning fossil fuels. Then Bitcoin came along,” Jessica McKenzie, May 06, 2021, <https://grist.org/technology/bitcoin-greenidge-seneca-lake-cryptocurrency/>.

²³ Congressional Research Service, “Bitcoin, Blockchain, and the Energy Sector,” Corrie E. Clark and Heather L. Greenley, August 9, 2019, <https://www.crs.gov/Reports/R41786>.

²⁴ Berkeley Haas, “Power-hungry cryptominers push up electricity costs for locals,” Laura Counts, August 3, 2021, <https://newsroom.haas.berkeley.edu/research/power-hungry-cryptominers-push-up-electricity-costs-for-locals/>.

²⁵ Grist, “This power plant stopped burning fossil fuels. Then Bitcoin came along,” Jessica McKenzie, May 06, 2021, <https://grist.org/technology/bitcoin-greenidge-seneca-lake-cryptocurrency/>.

²⁶ CNBC, “How the U.S. became the world’s new bitcoin mining hub,” MacKenzie Sigalos, July 17, 2021, <https://www.cnbc.com/2021/07/17/bitcoin-miners-moving-to-us-carbon-footprint.html>.

²⁷ Cointelegraph, “Crypto miners eye cheap power in Texas, but fears aired over impact on the grid,” Samuel Haig, June 16, 2021, <https://cointelegraph.com/news/crypto-miners-eye-cheap-power-in-texas-but-fears-ai-red-over-impact-on-the-grid>.

²⁸ *Id.*

3. Your company is planning to significantly scale both energy production and Bitcoin mining operations in the coming months and years.²⁹ Please describe your scaling plans.
 - a. What is your projection for your annual emissions and energy production once the expansion is complete? What is your timeframe for completion?
 - b. What are your specific plans for increasing Bitcoin mining, and what will be the total electricity consumption for this mining once the expansion is complete?
 - i. What is your projected electricity consumption for Bitcoin production at the Dresden plant for each of the next five years?
 - ii. What is your projected electricity consumption for Bitcoin production at all over your plants combined over the next five years?
 - c. You recently announced the purchase of 10,000 S19j Pro bitcoin miners representing 1 EH of mining capacity for your anticipated Spartanburg, South Carolina facility.³⁰ How many bitcoin mining units do you currently have at your Dresden location, and how many will you have in total once your expansion is complete? How many EH/s of mining capacity will that represent? What is your average annual energy consumption per mining unit?
 - d. What specific plans do you have to address the environmental impact of this scaling, outside of the purchasing of carbon offsets?
4. Your company's claim that Greenidge is the first 100% carbon-neutral bitcoin transaction processor in the United States is based on the purchasing of carbon offsets.³¹ Please provide information on the company through which you purchased these offsets, the location of the offsets, and any additional information that would support your claim that these offsets are a satisfactory counterbalance to your plant's emissions and are sufficient in making your overall operations environmentally friendly.
5. In order to prevent impingement and entrainment of fish, larvae, and other wildlife through water intake, the federal *Clean Water Act* requires facilities withdrawing upwards of 2 million gallons a day for cooling purposes to cover intake pipes with protective screens, for which New York's Department of Environmental Conservation has given Greenidge until late 2022 to comply.³² I am aware you have recently installed variable speed drives on your facility's water pumps to slow the speed of water intake.³³

²⁹ Greenidge Generation, "Greenidge to Expand Bitcoin Mining Fleet with Order of Latest Generation Mining Machines from Bitmain," Greenidge Generation Holdings Inc., September 15, 2021, <https://greenidge.com/wp-content/uploads/2021/09/Greenidge-Bitmain.pdf>.

³⁰ *Id.*

³¹ Greenidge Generation, "Greenidge Generation Takes First Step in Renewable Energy Investment Program," Greenidge Generation Holdings Inc., July 29, 2021, <https://greenidge.com/wp-content/uploads/2021/09/Greenidge-Landfill-Closure-Solar-Project-Announcement-7.29.21.pdf>.

³² Grist, "This power plant stopped burning fossil fuels. Then Bitcoin came along.," Jessica McKenzie, May 06, 2021, <https://grist.org/technology/bitcoin-greenidge-seneca-lake-cryptocurrency/>.

³³ *Id.*

- a. What does your data say about fish impingement and entrainment mortality – on both a monthly and annual basis – caused by your plant? How does your impingement data compare to the Environmental Protection Agency’s (EPA) proposed numeric performance standard of limiting fish impingement mortality to no more than 12% on an annual average and 31% on a monthly average, and how does your entrainment data compare to the EPA standard for new units of reducing entrainment mortality to the equivalent of 90% of reductions achieved by closed-cycle cooling?³⁴
 - b. Have you undertaken additional studies on this matter since your 2019 Cylindrical Wedge-Wire Screen Pilot Study in 2019?³⁵ What measures are you taking to reduce impingement and entrainment, and what other actions are you taking to protect wildlife in the lake?
6. Please provide detailed information regarding the temperature differentials of water intake and outflow from your facility. Specifically, please report the minimum and maximum temperature of intake and outflow for each month in the past year.
 7. Does Greenidge have any estimates or models regarding the impacts of your facility on energy costs to local families and businesses? If so, what do these estimates or models show? Have residential electricity costs increased since Greenidge began its cryptomining operations? What measures are you taking to ensure that local consumers and small businesses are not bearing the costs of Greenidge’s energy consumption?

Thank you for your attention to this important matter. I look forward to your response.

Sincerely,



Elizabeth Warren
United States Senator

³⁴ Congressional Research Service, “Cooling Water Intake Structures: Summary of the EPA Rule,” Claudia Copeland, September 8, 2014, <https://www.crs.gov/Reports/R41786>.

³⁵ Treichler Law Office, “Greenidge Generation CWWS Pilot Study,” ASA Analysis & Communication, Inc., March 2018, https://treichlerlawoffice.com/water/greenidge/Greenidge_Generating_Station_CWWS_Pilot_Study.pdf.