Comments from Seneca Lake Guardian, The Committee to Preserve the Finger Lakes, Fossil Free Tompkins, Sierra Club, and Earthjustice in Opposition to the Draft Title V Air Permit for Greenidge Generating Station, located at 590 Plant Road, Dresden, New York 14441 (Permit ID: 8-5736-00004/00017)

Submitted to the New York State Department of Environmental Conservation *via email and U.S. Mail to*:

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November 19, 2021

Copy by U.S. Mail to:
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Seneca Lake Guardian, The Committee to Preserve the Finger Lakes, Fossil Free Tompkins, Sierra Club, and Earthjustice respectfully submit the following comments addressing the Draft Title V Permit for Greenidge Generating Station, located at 590 Plant Road, Dresden, New York 14441 (Permit ID: 8-5736-00004/00017) (the "Facility").

Given the immense climate and local air impacts from the Facility's material change in operations to mine Bitcoin, the New York State Department of Environmental Conservation ("DEC") must deny the draft Title V Facility Permit ("Permit") at the Facility until Greenidge Generation LLC ("Greenidge" or the "Applicant") can show compliance with both the Clean Air Act and the Climate Leadership and Community Protection Act ("CLCPA"), and only after a full environmental review under the State Environmental Quality Review Act ("SEQRA").

As Commissioner Seggos recently stated:

> "NYS is taking action on #ClimateChange. Today @NYSDEC released for public comment draft air permits for former coal plant turned bitcoin mine, Greenidge LLC. DEC has not made a final determination on the permits and Greenidge has not shown compliance with NY's climate law . . . @NYSDEC wants comments on the proposal's compliance with NY's climate law #CLCPA."[1]

The Environmental Notice Bulletin for the draft Permit states:

> "In accordance with 6 NYCRR 621.7(b)(9) and 201-6.3(c), the Administrator of the United States Environmental Protection Agency (USEPA) has the authority to bar issuance of any Title V Facility Permit if it is determined not to be in compliance with applicable requirements of the Clean Air Act or 6 NYCRR Part 201."[2]

Senator Gillibrand recently stated in her September 8, 2021 letter to the EPA that "the potential consequences of the plant's Bitcoin mining operations and the effect on local emissions and air quality" are significant and require full assessment.[3] Senator Schumer also recently "urged the Environmental Protection Agency (EPA) to exercise its oversight powers under the Title V Clean Air Act and Clean Water Act and closely review Greenidge Generation Plant's permit renewal application" because "[t]he EPA and NYSDEC regulate such plants to keep these negative impacts on our health and the environment to a minimum, while maximizing the public

[1]DEC, Commissioner Basil Seggos, @BasilSeggos, Twitter, (Sept. 8, 2021), https://twitter.com/basilseggos/status/1435724739352449025.

[2] DEC, *ENB Region 8 Completed Applications 09/08/2021* (Sept. 9, 2021), https://www.dec.ny.gov/enb/20210908_reg8.html#Greenidge_Generation_LLC%20/2.

[3] Letter from Sen. Kirsten Gillibrand to EPA *on Greenidge Bitcoin Plant Title V Permit* (Sept. 8, 2021), https://www.gillibrand.senate.gov/imo/media/doc/Gillibrand%20Letter%20to%20EPA%20on%20Greenidge%20Bitcoin%20Plant%20Title%20V%20Permit%20-%20Updated.pdf.

good" and "[t]his increase in emissions may bring profits to the plant's owners, but it does not provide the same pub[l]ic good to the surrounding community. . ." [4]

The Applicant's Title V Air Permit is noncompliant with the applicable requirements of the Clean Air Act and 6 NYCRR Part 200 *et seq.*, as well and noncompliant and inconsistent with the statutory provisions of the CLCPA, for the reasons set out below.

I. NEITHER THE APPLICANT'S ORIGINAL 2016 CLEAN AIR ACT PERMIT NOR THE CURRENT DRAFT PERMIT ARE SUFFICIENT TO AUTHORIZE ITS NEW PROOF-OF-WORK CRYPTOCURRENCY MINING OPERATIONS.

A. The Applicant's Clean Air Act Construction and Operating Permit Should Not Be Renewed Because the Facility's Fundamental Purpose Has Changed, Rendering DEC's Prior Best Available Control Technology (BACT) and Lowest Achievable Emissions Rate (LAER) Determinations Invalid.

When Greenidge applied for a permit to construct and operate its Facility in 2016, it sought DEC's approval for an electric generating station that would generate limited electricity for sale.[5] Though the Facility was originally constructed decades ago, the prior owner relinquished its permits in 2012 and U.S. EPA required DEC to permit the Facility's 2016 reactivation as a "new" source subject to major New Source Review (NSR) requirements in Clean Air Act ("CAA") parts C (Prevention of Significant Deterioration) and D (nonattainment NSR). Among other things, this meant that the Facility had to be made subject to emission limits equivalent to "best available control technology" ("BACT") for pollutants for which the

[4] Sen. Charles E. Schumer, Press Release, *Schumer Calls on EPA to Review Air Permit For Greenidge Power Plant Cryptocurrency Mining Facility* (Oct. 12, 2021), https://www.schumer.senate.gov/newsroom/press-releases/citing-environmental-concerns-schumer-calls-on-epa-to-review-air-permit-for-greenidge-power-plant-cryptocurrency-mining-facility-senator-reveals-emisions-from-plant-have-recently-increased-tenfold-and-with-ownership-planning-to-expand-virtual-mining-operation-pollution-from-mining-will-only-increase.

[5] Greenidge's 2016 application made it clear that the station was being reopened for the purpose of producing electricity, on a limited basis, to be sold on the wholesale market. First, Greenidge's 2016 air permit application identified the applicable Standard Industrial Classification codes as 4911 ("Electric Services—Establishments engaged in the generation, transmission, and/or distribution of electric energy **for sale"**) and 4931 ("Electric and Other Services Combined—Establishments primarily engaged in providing electric services in combination with other services, **with electric services as the major part** though less than 95% of the total") (emphasis added). Greenidge Air Permit Application, DEC ID 8-5736-00004 at 2 (Mar. 14, 2016). (Descriptions obtained from https://www.naics.com/search/). In addition, DEC confirmed its understanding that Greenidge would only be producing electricity to be sold to the grid when it issued its "Negative Declaration" under SEQRA, which stated: "The re-activation of Unit 4 at Greenidge Station will use biomass and natural gas to generate electricity. However, the operation of the plant itself will not create a new demand for energy. Rather, it will serve as another facility to help meet the current electricity demands of the region. As a result, the plant will have no significant adverse impacts in increasing the use of energy." SEQR Part 3, *Full Environmental Assessment Form Evaluation of the Magnitude and Importance of Project Impacts and Determination of Significance*, DEC Application #8-5736-00004/00001m /00016, and /00017 at 3 (June 28, 2016).

area was attaining federal ambient air quality standards,[6] and equivalent to the "lowest achievable emissions rate" for pollutants for which the area was not attaining federal standards.[7] These critical Clean Air Act determinations were made based on the core assumption that the proposed Greenidge Facility would operate with the primary purpose of producing electricity for sale.

After only a few years of operating as an electric generating facility, however, the Facility's owners realized that there was not enough demand for electricity to make operating the Facility profitable. According to a 2019 presentation by Greenidge attorney Kevin McAuliffe explained that Greenidge had not been generating electricity for public consumption.[8] Mr. McAuliffe stated that rather than close the power plant down, the plant owners decided to convert the Facility to a Bitcoin mining operation as a way to get a return on their already substantial investment of $25 million to convert the former coal plant to natural gas and building a spur pipeline to supply it.[9]

In 2020, the Facility began its transformation into a Bitcoin mining facility, installing prefabricated containers housing energy-intensive computers and other hardware at the plant, as well as "electrical equipment . . . (overhead and underground) including poles, transformers, and other associated equipment."[10] Construction at the Facility continues to this day. Though Greenidge has a contract with the New York Independent System Operator (NYISO) to provide capacity services if called into service, and the plant may also elect to sell electricity to the grid when it is profitable to do so, the new data centers will utilize the vast majority of the electricity generated. Last year, the Greenidge CFO stated that:

> "Although there is no fixed threshold of revenue from selling power that would make us want to sell the power instead of mine crypto, currently that number would be over $100 per MWh of power that we generate."[11]

With average prices in the NYISO Central Zone much lower than $100/MWh (in fact, closer to $20/MWh in 2020),[12] this statement confirms the Applicant's intent to use its

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[6] CAA § 165(a)(4), 42 U.S.C. § 7475(a)(4); 40 C.F.R. § 52.21(j)(2); 6 NYCRR § 231-7.6.

[7] 42 U.S.C. § 7503(a)(2); 6 NYCRR § 231-5.4.

[8] John Christensen, *Power Plant to Add Data Center*, The Chronicle-Express (July 31, 2019), https://web.archive.org/web/20190731061907/https:/www.chronicle-express.com/news/20190731/power-plant-to-add-data-center#expand.

[9] *Id*.

[10] Town Planning Board, Town of Torrey, *Conditioned Negative Declaration* (Nov. 17, 2020), https://treichlerlawoffice.com/water/greenidge/PB%20Final%20SEQRA_11162020.pdf.

[11] DailyAlts, *Digital Assets: Greenidge Gen, Once a Coal Plant, Is Now a Profitable Crypto Miner* (Aug. 2020), https://dailyalts.com/digital-assets-greenidge-gen-once-a-coal-plant-is-now-a-profitable-crypto-miner/.

[12] NYISO, *Market Operations Report* at I at 11 (Mar. 17, 2021), https://www.nyiso.com/documents/20142/19922573/Market%20Operations%20Report_%20BIC_03.17.21.pdf/0268211f-d6c1-551e-3cab-fc158fbad0ef.

generation for on-site cryptocurrency mining. Indeed, in 2020, Greenidge CFO stated "Without the crypto mining operation, we would not be running most of the time. . .[13]

As an illustration of the changes in Facility operations and resultant increased GHG emissions following its conversion to Bitcoin mining, one can simply look at the days of operations at the Facility and capacity factor from before it began mining Bitcoin, and after it began mining Bitcoin, as follows:

Year[14]	**Days of Operation**[15]	**Approx. Annual Capacity Factor**[16]	**CO2 emitted** (tons per year)[17]	**Fuel source**
2009	267	34%	455,795	Coal
2010	358	65%	599,105	Coal
2011	0	0%	0	none
2012	0	0%	0	none
2013	0	0%	0	none
2014	0	0%	0	none
2015	0	0%	0	none
2016	0	0%	0	none
2017	135	17%	124,009	Gas
2018	147	19%	119,304	Gas
2019	48	6%	39,406	Gas
2020[18]	343	42%	228,303	Gas
2021	Every day	Increasing[19]	203,832 (through Sept. 30, 2021)	Gas

[13] *Digital Assets: Greenidge Gen, Once a Coal Plant, Is Now a Profitable Crypto Miner*, DailyAlts (Aug. 19, 2020) https://dailyalts.com/digital-assets-greenidge-gen-once-a-coal-plant-is-now-a-profitable-crypto-miner/.

[14] Data for the table has been gathered from the Applicant's emissions as listed under the EPA's *Power Sector Emissions Data*, https://www.epa.gov/airmarkets/power-sector-emissions-data. Each year, the EPA compiles hours of operation, tons of CO2 emissions, NOx emissions, and other CO2e pollutants.

[15] Days having less than three hours of operation were not included.

[16] The annual capacity factor is a percentage measurement of actual generation in relation to potential maximum generation on an annual basis. For example, a generator with a 1 megawatt capacity operating at full capacity for a year (8,760 hours) would produce 8,760 megawatt-hours (MWh) of electricity. The generator's annual capacity factor would be 100%. NYISO, *Power Trends 2021: New York's Clean Energy Grid of the Future*, Glossary at 49 (2021), https://www.nyiso.com/documents/20142/2223020/2021-Power-Trends-Report.pdf/471a65f8-4f3a-59f9-4f8c-3d9f2754d7de. For 2021, the annual capacity factor is estimated by assuming that operations will continue on trend as they have for the first half of the year.

[17] EPA, *Power Sector Emissions Data*, https://www.epa.gov/airmarkets/power-sector-emissions-data.

[18] According to the Applicant's recent SEC filing. Greenidge "launched a commercial data center for Bitcoin mining and blockchain services in January 2020, and as of December 31, 2020, [Greenidge] had approximately 6,900 miners." Greenidge Generation Holdings Inc., Sec. & Exch. Comm'n, *Form S-1 Registration Statement* at 2 (Oct. 5, 2021), https://sec.report/Document/0001193125-21-291578/.

[19] Without the full year's data and with the operations at the power plant increasing every day, it is difficult to calculate this figure.

In the last three months of reported data (July through September) alone, the emissions nearly doubled—from 119,013 tons of carbon dioxide ("CO2") to 203,832 tons of CO2.[20]

Despite the obvious physical and operational changes made to the Greenidge plant to enable it to mine Bitcoin and the resulting impact on the Facility's operations and emissions, Greenidge did not apply for DEC approval to convert its Facility to a Bitcoin mining operation. Nor does Greenidge's 2021 air permit renewal application make any mention of its Bitcoin mining operations. Instead, its 2021 application merely declares:

> "This application requests renewal of the existing permit, with only minor, non-material, revisions, which are limited to: removal of the diesel fire pump permit conditions, since the diesel fire pump has been taken out of service and removed from the Facility; and a request for minor revisions to the monitoring requirements for particulate emissions (PM-10, PM-2.5 and Particulates), which includes the use of a flowmeter for the Facility to demonstrate continuous compliance with the existing PM-10, PM2.5 and Particulates permit conditions."[21]

Likewise, the "Permit Review Report" released by DEC along with the Facility's draft renewal permit states that "[t]he renewal application is essentially unchanged from the existing permit,"[22] and the public notice announcing release of The Applicant's draft renewal permit declares that "[t]he Facility is a primarily natural gas-fired electric generating plant."[23] To the contrary, the Applicant's transition from a Facility with a primary purpose of generating limited electricity for sale on the capacity market to a facility with a primary purpose of mining Bitcoin fundamentally undermines the basis for DEC's original 2016 decision to issue an air permit authorizing the Facility's construction and operation.

To the contrary, the Applicant's transition from a Facility with a primary purpose of generating limited electricity for sale on the capacity market to a facility with a primary purpose of mining Bitcoin fundamentally undermines the basis for DEC's original 2016 decision to issue an air permit authorizing the Facility's construction and operation.

Specifically, as discussed in more detail below, when a permitting agency determines what control options must be considered pursuant to the Clean Air Act's BACT and LAER requirements, an agency generally only considers those options that would not "redefine the

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[20] EPA, *Power Sector Emissions Data*, https://www.epa.gov/airmarkets/power-sector-emissions-data.

[21] ERM Consulting & Engineering, Inc. ("ERM"), *Title IV Acid Rain Permit and Title V Air Operating Permit Renewal Application*; Greenidge Generating Station; Dresden, New York, DEC ID No. 8-5736-00004, Cover Letter at 1-2 (Mar. 5, 2021).

[22] DEC, *Permit Review Report, Greenidge Station, Permit ID 8-5736-00004/00017* at 2 (https://www.dec.ny.gov/docs/permits_ej_operations_pdf/greenidgeprr.pdf).

[23] DEC, *Permit Documentation for Notable Projects: Greenidge Station*, Permit ID 8-5736-00004/00017 and Permit ID 8-5736-00004/00017, https://www.dec.ny.gov/permits/123728.html.

source."[24] Since the Facility proposed by the Applicant in 2016 was intended to serve as a primarily natural-gas-fired electric generating station producing limited electricity for sale on the capacity market, DEC only considered those control options that were consistent with that purpose.[25] If DEC had instead been confronted with a permit application for a source with a primary business purpose of Bitcoin mining (or even a secondary purpose), DEC's consideration of control options would have been much broader. Likewise, the SEQR analysis performed as part of the 2016 permitting process, which assumed that the Facility would not increase energy usage but would simply serve the region's existing energy needs,[26] would have been substantially different if the Facility being proposed were an energy-intensive Bitcoin mining operation.

Due to the Applicant's 2020 conversion from an electric generating station primarily producing limited electricity for sale to a Bitcoin mining operation producing power that it overwhelmingly utilizes for its own operations, DEC should not renew the Applicant's 2016 air permit. Rather, DEC should void its prior permit issuance, including its Clean Air Act construction approval, and require Greenidge to apply for new Clean Air Act NSR and Title V air permits as though it were not yet constructed.[27]

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[24] *In re Pennsauken County*, 2 E.A.D. 667, 673 (EAB, Nov. 10, 1998) (explaining that BACT conditions "are not intended to redefine the source"). *See, also, e.g., In re Knauf Fiber Glass*, GmbH, 8 E.A.D. 121, 136 (EAB Feb. 4, 1999) (". . . it is legitimate to look at inherently lower-polluting processes in the BACT analysis, but EPA has not generally required a source to change (i.e., redefine) its basic design."); *In re Desert Rock Energy Co., LLC*, 14 E.A.D. 484, 526-530 (EAB, Sept. 24, 2009) (describing the concept of "Redefinition of the Source").

[25] *See* Environmental Resources Management, *BACT/LAER or Emission Control Evaluation for NOx, CO, PM, PM10, PM2.5, Hazardous Air Pollutants and Greenhouse Gases*, *Section 3 of Application for a Title V Air Operating Permit-Supplemental Information, for Greenidge Generation LLC, Section 3* at 25 (pdf at 12) (April 2016) ("The application of BACT should consider both emission avoidance strategies (such as the use of lower emitting fuels) as well as add-on pollution control technologies, *but cannot re-define the emission source being permitted*.") (emphasis added). *See also, id.* at 51 (pdf at 39) (rejecting carbon capture and sequestration method based on part on argument that it would "re-define the source being permitted").

[26] SEQR Part 3, *Full Environmental Assessment Form Evaluation of the Magnitude and Importance of Project Impacts and Determination of Significance*, DEC Application #8-5736-00004/00001m /00016, and /00017, (June 28, 2016).

[27] The Applicant's electric generating units and its Bitcoin mining equipment together qualify as a single stationary source for purposes of air permitting. "Stationary source" is defined in New York's regulations as "[a]ny building, structure, facility or installation, excluding nonroad engines, that emits or may emit any air pollutant." 6 NYCRR § 200.1(cd). Federal regulations define "Building, structure, facility, or installation" as "all of the pollutant-emitting activities which belong to the same industrial grouping, are located on one or more contiguous or adjacent properties, and are under the control of the same person (or persons under common control) except the activities of any vessel." 40 C.F.R. § 52.21(b)(6)(i). EPA has explained that even facilities with different two-digit source classifications can be part of the same "industrial grouping" where one facility serves as "support" for the other. *See, e.g.,* Letter from U.S. EPA Region 5 to Michael Valentine, Minnesota Pollution Control Agency at 2 (June 12, 1990), (https://www.epa.gov/sites/default/files/2015-07/documents/chemolite.pdf) (citing to the preamble to the 1980 federal PSD rules). The Applicant's electric generating facility provides the electricity needed for its Bitcoin mining equipment, and thus, the electric generating facility plainly serves as a support facility for the Bitcoin mining facility. There is no question that these facilities are located on adjacent properties (in fact, the same property) and that they are under common control.

B. A Facility's Purpose is Fundamental to a Permitting Agency's Determination of Control Options for Purposes of the Clean Air Act's New Source Review Program.

The Applicant's fundamental change in purpose is no small matter in the Clean Air Act permitting context. In short, because the purported purpose of the originally proposed Greenidge Facility was to use natural gas to produce limited amounts of electricity to sell on the capacity market to meet limited existing electrical demand, DEC's evaluation of the pollution control strategies available for achieving BACT-level emission limits were limited to those strategies that supported that purpose. If the Applicant had instead proposed to construct and operate a facility with the primary purpose of mining energy-intensive proof-of-work cryptocurrency 24 hours a day, 365 days per year, DEC could have considered a much broader array of control strategies, for example, by including requiring the Applicant to utilize zero-emissions fuels to generate at least a portion of the electricity needed, to engage in strategies to reduce the energy demand of its data centers, to increase the energy efficiency of its mining, or even to utilize a less energy-intensive method of mining cryptocurrency than the proof-of-work method, such as the proof-of-stake method, the federated consensus method, the proof-of-authority method, and the open representative voting method, among others. (*See* Section II(H) below.) Because the Applicant's 2016 permit application provided no indication that the Facility would become a cryptocurrency mining operation, none of these options—or any other option designed to reduce the Applicant's dependence on greenhouse-gas-emitting fossil fuels to mine proof-of-work cryptocurrency—were considered.[28]

The determination of what constitutes BACT for a new major stationary source "is one of the central features of [the Clean Air Act's] PSD program."[29] To satisfy the BACT requirement, the permitting agency is required to make a case-specific determination of the emission limitations that equate to "application of control technology or methods appropriate for the particular facility."[30] The Act defines BACT as follows:

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[28] In addition, many rules and regulations governing net-metering and remote net-metering have changed since the 2016 permit was issued. *See, e.g.*, New York State Energy Research and Development Authority, Net Metering and Remote-Net Metering, https://www.nyserda.ny.gov/researchers-and-policymakers/power-generation/net-metering-interconnection; ConEd, *2020 Distributed Generation Winter Workshop* (2020), https://www.coned.com/-/media/files/coned/documents/save-energy-money/using-private-generation/applying-for-interconnection/2020-winter-workshop.pdf; N.Y. State Pub. Serv, Cmm'n, Case No. 15-E-0267, *Order Modifying Grandfathering provisions* (Sept. 14, 2017); N.Y. State Pub. Serv, Cmm'n, Case No. 15-E-0751, *Order On Standby And Buyback Service Rate Design And Establishing Optional Demand-Based Rates*, (May 16, 2019); N.Y. State Pub. Serv, Cmm'n, Case No. 15-E-0751, *Order Establishing Net Metering Successor Tariff* (July 16, 2020). DEC should also consider these changes in governing law since the 2016 permit was issued.

[29] *In re Prairie State Generating Company*, 13 E.A.D. 1, 7 (EAB, Aug. 24, 2006, *aff'd sub. nom Sierra Club v. U.S. EPA*, 499 F.3d 653 (7th Cir. 2007).

[30] *Id.* at 12.

> "The term "best available control technology" means an emission limitation based on the maximum degree of reduction of each pollutant subject to regulation under this chapter emitted from or which results from any major emitting facility, which the permitting authority, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such facility through application of production processes and available methods, systems, and techniques, including fuel cleaning, clean fuels, or treatment or innovative fuel combustion techniques for control of each such pollutant."[31]

While a permitting agency has broad discretion regarding what control options it requires a PSD permit applicant to consider, "[h]istorically, EPA has not considered the BACT requirement as a means to *redefine the design of the source* when considering available control alternatives."[32] This is because BACT is a statutory requirement that applies to the "proposed facility,"[33] and EPA views the "proposed facility" as a facility consisting of those design elements that "are inherent for the applicant's purpose."[34] Accordingly, decisions by EPA's Environmental Appeals Board ("EAB") reflect "a central concern with preservation of a facility's basic purpose."[35]

Specifically, EAB explains that in determining whether a particular control option would "redefine" a source—and therefore be inappropriate for consideration in the BACT analysis—a permitting agency "appropriately looks to how the applicant, in proposing the facility, *defines the goals, objectives, purpose, or basic design for the proposed facility*."[36] According to EAB: "[T]he permit issuer must be mindful that BACT, in most cases, should not be applied to regulate the applicant's objective or purpose for the proposed facility, and therefore, *the permit issuer must discern which design elements are inherent to that purpose*, articulated for reasons independent of air quality permitting, *and which design elements may be changed to achieve pollutant emissions reductions without disrupting the applicant's basic business purpose* for the proposed facility."[37] Quoting this language, EPA's "PSD and Title V Permitting Guidance for Greenhouse Gases" further emphasized that a permitting agency should consider a proposed facility's *purpose* when identifying available emission reduction methods and strategies for purposes of determining what constitutes BACT for a particular facility.[38]

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[31] CAA § 169(3), 42 U.S.C. § 7479(3). *See also* 6 NYCRR § 231-4.1(b)(9).

[32] *Prairie State* at 21 (quoting EPA's NSR Manual at B.13) (emphasis added).

[33] 42 U.S.C. § 7475(a)(4). *See Sierra Club v. U.S. EPA*, 499 F.3d 653, 654 (7th Cir. 2007).

[34] *In re Desert Rock Energy Co.*, 14 E.A.D. 484, 530 (EAB Sept. 24, 2009).

[35] Prairie State at 21.

[36] *Prairie State* at 23 (emphasis added); see also In re Desert Rock Energy Co., 14 E.A.D. at 530.

[37] *Prairie State* at 23 (emphasis added).

[38] U.S. EPA, *PSD and Title V Permitting Guidance for Greenhouse Gases* at 31(Mar. 2011) ("EPA PSD GHG Guidance"), https://www.epa.gov/sites/default/files/2015-08/documents/ghgguid.pdf.

Consistent with EPA's EAB decisions, DEC's 2016 BACT evaluation for the Greenidge Facility considered only those control options that would be consistent with its purpose of producing limited amounts of electricity for sale on the wholesale market. In other words, DEC considered those approaches that would reduce air pollution from the process of generating electricity from natural gas or other authorized fuels. DEC did not have any occasion to evaluate the efficiency of the end-users of the electricity, because of course, the electricity was not being used by the Facility, it was only being sold. Likewise, DEC did not evaluate whether it would be feasible to generate electricity through some less-polluting means than via natural gas combustion, because that would change the facility's fundamental purpose and basic design. Now, however, the Applicant's fundamental purpose is no longer to combust natural gas to produce limited amounts of electricity for sale on the wholesale market. Instead, by far and away the most significant process at the facility is mining Bitcoin. That transition fundamentally altered the design and purpose of the facility, thereby invalidating DEC's 2016 BACT determination for the facility. Given the substantial difference between the facility that DEC permitted in 2016 and the facility that is operating now, DEC should not renew the Applicant's Title V permit.

C. The BACT Determination for the Applicant's Proof-of-Work Cryptocurrency Mining Facility Likely Would Be Different from the BACT Determination for Its Originally-Proposed Natural-Gas-Fired Electric Generating Station Producing Electricity for the Grid.

If Greenidge had been permitted as a cryptocurrency mining operation, DEC's BACT determination likely would have been very different. First, DEC's BACT analysis likely would have considered the feasibility of using cleaner energy sources, at least in part, to generate the electricity needed for cryptocurrency mining. As explained above, the options available for consideration as BACT change, depending upon the applicant's purpose in constructing the facility. For electric generating facilities like the one originally proposed by the Applicant, EAB explains that requiring such a facility to utilize a different fuel than the one proposed by the applicant would typically be viewed as a redefinition of the proposed source, and therefore, inappropriate as a BACT option.[39] For example, "a proposal to construct a coal-fired power plant or boiler . . . need not consider the alternative of a natural gas-fired unit as part of the BACT determination, even though a natural gas unit would be inherently less polluting than the coal-fired unit."[40] Thus, in considering BACT options pertaining to the Applicant's 2016 proposal to construct and operate a natural-gas-fired electric generating station that would produce limited amounts of electricity for New York's electrical grid, DEC would not have considered requiring Greenidge to instead produce electricity, in whole or in part, or utilize renewable energy sources such as wind and solar. Excluding consideration of such "clean fuels" would have been unjustified if Greenidge had instead proposed to construct and operate a facility primarily engaged in Bitcoin mining, since the primary business purpose of such a facility would be to mine Bitcoins, not to produce electricity.

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[39] *In re Northern Michigan University*, PSD Appeal No. 08-02, 301-02 (EAB Feb. 18, 2009) (explaining that the purpose-based test "shields from BACT review fuel choices found 'integral' to the basic design," e.g., "[p]roposed coal-fired electric generators need not consider a natural gas turbine.").

[40] *In re Knauf Fiber Glass*, 8 E.A.D. 121, 136 (EAB Feb. 4, 1999).

Second, if Greenidge had applied to construct an energy-intensive proof-of-work cryptocurrency mining facility, the BACT analysis would have needed to consider the possibility that the facility could use lower-emitting "production processes."[41] As explained in U.S. EPA's NSR Workshop Manual, "[a] production process is defined in terms of its physical and chemical unit operations used to produce the desired product from a specified set of raw materials."[42] In the original permitting action, the BACT analysis necessarily focused on techniques for reducing emissions from electric generation, since the Facility's "product" was electricity to be sold on the wholesale market. Now, though the Facility's emissions primarily come from the electric generating units, these units are no longer free-standing, but are instead part of the Bitcoin mining process. Bitcoin has now become the Facility's "product," and it is the Bitcoin production process that uses energy and produces air pollution. Thus, DEC's BACT analysis for the Bitcoin operation would necessarily include consideration of lower-emitting processes for producing Bitcoin—or, more generally, lower-emitting processes for producing cryptocurrency. In addition to the express statutory and regulatory language requiring consideration of lower-emitting "production processes" as part of the BACT analysis, EPA's "PSD and Title V Permitting Guidance for Greenhouse Gases," confirms that DEC has discretion "*to evaluate BACT on a facility-wide basis by taking into account operations and equipment which affect the environmental performance of the overall facility*."[43] Specifically, EPA's GHG PSD Guidance explains that for "a new greenfield facility," energy efficiency options include those that "improv[e] the utilization of thermal energy and electricity that is generated and used on site."[44] Thus, EPA:

> "recommends that permitting authorities consider technologies or processes that not only maximize the energy efficiency of the individual emitting units, but also process improvements that impact the facility's energy utilization assuming it can be shown that efficiencies in energy use by the facility's higher-energy-using equipment, processes or operations could lead to reductions in emissions from the facility."[45]

Accordingly, if the Applicant had proposed construction of a proof-of-work cryptocurrency mining operation, it plainly would have been appropriate for DEC to consider as part of its BACT determination methods for reducing the energy demand from the Facility's proof-of-work cryptocurrency mining operation. For example, if the Applicant were to instead utilize the "proof-of-stake" process for mining cryptocurrency (just one of many alternatives described in Section II(H) below), the Facility would consume up to 99% less energy than it

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[41] 42 U.S.C. § 7479(3) (defining BACT as including lower-emitting "production processes"). 6 NYCRR § 231-4.1(b)(9) (same). *See also In re Knauf Fiberglass*, 8 E.A.D. at 136 (observing that "[t]he permitting authority may require consideration of alternative production processes in the BACT analysis when appropriate.").

[42] U.S. EPA, *Draft NSR Workshop Manual* at B.13-14 (1990), https://www.epa.gov/sites/default/files/2015-07/documents/1990wman.pdf.

[43] EPA PSD GHG Guidance at 23 (emphasis added).

[44] *Id.* at 30.

[45] *Id.*

currently uses in its "proof-of-work" Bitcoin mining operation.[46] No such considerations were ever brought to bear on the Applicant's Bitcoin mining operations because the Applicant's 2016 application made no mention of Bitcoin mining.[47].

In sum, if the Facility has been permitted as a proof-of-work cryptocurrency mining facility, DEC's BACT evaluation would have been much more far-reaching and would have necessarily considered production processes and clean fuels that could have greatly reduced the Facility's air pollution. DEC should not allow Greenidge to circumvent the Clean Air Act's NSR program by operating an energy-intensive, highly polluting Bitcoin facility pursuant to a NSR permit for an electric generating station. Rather, DEC must deny Greenidge's application to renew its 2016 air permit and instruct the Applicant that to continue operating, it must apply for and obtain a new construction and operating permit that reflects its primary purpose as a Bitcoin mining facility.

D. Due to the Conversion from an Electric Generating Station to a Proof-of-Work Cryptocurrency Mining Operation, DEC Must Not Only Refuse to Renew the Applicant's Air Permit, But Also Revoke the Original 2016 Permit.

Under New York's Uniform Procedures at 6 NYCRR part 621, a permit may be "modified, suspended, or revoked at any time" based on grounds specified in Section 621.13(a). In relevant part, these grounds include:

> "(1) [M]aterially false or inaccurate statements in the permit application or supporting papers; . . . (3) exceeding the scope of the project as described in the permit application; . . . (4) newly discovered material information . . . "[48]

Because Greenidge's original 2016 permit application sought approval to construct and operate an electric generating facility intended to produce electricity for the wholesale market, and the Applicant has now converted the Facility to primarily a Bitcoin mining operation without any change to its permit or update to its permit application information, DEC should not only refuse to renew Greenidge's air permit, but it should revoke the original 2016 permit authorizing the Facility's construction and operation. As explained above, by applying for and obtaining its Clean Air Act permit on the basis that it would be operating a standard electric generating facility intended to sell electricity to the grid, and then switching its primary purpose to Bitcoin mining, Greenidge undermined the Clean Air Act's NSR procedures.

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[46] *See, e.g.*, NBC News, *Cryptocurrency goes green: Could 'proof of stake' offer a solution to energy concerns?* (May 25, 2021), https://www.nbcnews.com/tech/tech-news/cryptocurrency-goes-green-proof-stake-offer-solution-energy-concerns-rcna1030; Digiconomist, *Bitcoin Energy Consumption Index* (2021), https://digiconomist.net/Bitcoin-energy-consumption/; Carl Beekhuizen, *A country's worth of power, no more!*, Etherium Foundation Blog (May 18, 2021), https://blog.ethereum.org/2021/05/18/country-power-no-more/.

[47] Greenidge Air Permit Application, DEC ID 8-5736-00004 at 2 (Mar. 14, 2016).

[48] 6 NYCRR § 621.13(a).

This is exactly the circumstance under which a permit should be revoked pursuant to 6 NYCRR Section 621.13(a). The Applicant's conversion to primarily a Bitcoin mining facility renders statements in the 2016 permit application and supporting papers indicating that the Facility would primarily be a natural-gas-fired generating station "inaccurate." Likewise, the Applicant's expansion of its purposes to encompass Bitcoin mining "exceed[s] the scope of the project as described in the [2016] permit application." And certainly, the extent to which Bitcoin mining has overtaken the Facility's original design as an electric generating station producing electricity for sale on the wholesale market constitutes "newly discovered material information." Accordingly, pursuant to its authority under 6 NYCRR Section 621.13(a), DEC should not renew the 2016 Title V permit, but should instead revoke the original 2016 permit and its accompanying NSR construction authorization. DEC should require the Applicant to cease operations unless and until it obtains new Title V and NSR permits that specifically authorize the Facility's operation for the purpose of Bitcoin mining.

E. Due to the Applicant's Failure to Describe the Material Changes to its Activities in Its Clean Air Act Permit Renewal Application, DEC Should Not Allow Greenidge to Continue Operating Pursuant to Its Expired Permit Under the Permit Application Shield.

Under Section 401(2) of the State Administrative Procedure Act, a permittee that has submitted a timely and "sufficient application for renewal" of a permit may continue operating under the terms of its permit even after the permit's listed expiration date until such time as DEC makes a final decision on the permittee's renewal application. The term "sufficient application for renewal" is defined at 6 NYCRR 621.2(ad) as an application that, among other things, includes "identification of any material changes in regulated operations."

As discussed above, the 2021 air permit renewal application says absolutely nothing regarding its conversion of the Facility to a proof-of-work cryptocurrency mining operation where the Facility runs 24 hours a day. Given the emissions increase resulting from this fundamental change to the Facility's purpose and operations, as well as the impact that the implications that this change has for the validity of DEC's prior BACT and SEQR determinations, this change constitutes a "material change[] in regulated operations." Accordingly, the Applicant's failure to identify this change in its renewal application renders its application insufficient, and DEC should not allow the Facility to continue operating under its now-expired air permit.

F. The Applicant's Construction of Its New Data Facility and Commencement of Proof-of-Work Cryptocurrency Mining Activities, Without First Obtaining a New Source Review Permit Authorizing Such Major Modification, Violated the Clean Air Act.

Because Bitcoin-related changes at the Facility constitute material physical changes and significant changes in the method of operations at the Facility that increase air emissions, DEC must require the application of special permitting rules for plant modifications.

New York regulations include New Source Review, or NSR, for new and modified facilities.[49] These rules apply to modifications, defined as any physical change in, or change in the method of operation of, a facility which results in a level of annual emissions in excess of the baseline actual emissions of any regulated NSR contaminant.[50] In particular, an NSR major modification is any modification of a major facility that would equal or exceed the applicable significant project threshold of a regulated NSR contaminant and would result in a significant net emissions increase of that contaminant.[51]

Regulated NSR contaminants include, among other pollutants, nitrogen oxides (NOx).[52] Carbon dioxide equivalents (CO2e) are NSR-regulated if a major facility triggers review for another pollutant and has an emissions increase for CO2e of 75,000 tons per year or more. [53]

New York regulations describe how to determine whether an emissions increase triggers an NSR modification. A "net emission increase" includes increases from the project emission potential of the modification, among other things.[54] The project emission potential, for existing sources at existing facilities, is the difference between the baseline actual emissions and the projected actual emissions of the sources.[55] Baseline actual emissions are the rate of emissions in tons per year of a regulated NSR contaminant during a baseline period, measured by continuous emission monitors or other methods.[56] The baseline period is any twenty-four consecutive months in the five years preceding various dates specified in the rule, except that "for a facility which fails to submit a permit application for a NSR major modification and begins actual construction of such modification, the department will determine an appropriate baseline period."[57]

As noted, the Facility's emissions potential depends in part on the projected actual emissions after the project is completed. Under the rules, projected actual emissions are the maximum annual rate, in tons per year, at which an existing emission source is projected to emit a regulated NSR contaminant in any one of the five years (12-month period) following the date the source commences operation after a modification.[58] A source must consider any one of the 10 years following that date if the project involves increasing the emission source's design capacity or its potential to emit that regulated NSR contaminant and full utilization of the emission source would result in exceeding the applicable significant project threshold in Subpart 231-13 or a significant net emissions increase at the major facility.[59] Among other

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[49] 6 NYCRR Part 231.

[50] *Id.* at 231-4.1(b)(30).

[51] *Id.* at 231-4.1(b)(33).

[52] *Id.* at 231-4.1(b)(45).

[53] *Id.* at 231-4.1(b)(45, 50).

[54] *Id.* at 231-4.1(b)(31).

[55] *Id.* at 231-4.1(b)(41).

[56] *Id.* at 231-4.1(b)(4)(i)(*b)*. DEC has the discretion to determine limits and/or constraints under this provision or elsewhere in the regulation. 6 NYCRR 231-4.1(b)(7)). *See also* DEC, *Part 231, NSR Implementation Guidance* at https://www.dec.ny.gov/chemical/63377.html.

[57] *Id.* at 231-4.1(b)(7)(v).

[58] *Id.* at 231-4.1(b)(42).

[59] *Id.*

criteria, a source may exclude, in calculating any increase in emissions that results from the particular project, that portion of the emission source's emissions following the project that the existing emission source could have accommodated during the consecutive 24-month period used to establish the baseline actual emissions and that are also unrelated to the particular project.[60] Finally, the owner or operator of the facility may elect to use the potential to emit of the emission source(s), in tons per year.[61]

NSR major modifications are those modifications that, among other things, result in a significant net emission increase.[62] This is defined as a net emission increase of a regulated NSR contaminant at an existing major facility located in an attainment area or unclassifiable area that equals or exceeds the applicable significant net emissions increase threshold.[63] For NOx, this threshold is forty tons per year.[64]

The Facility has recently made wide-ranging changes as part of its switch to Bitcoin mining, including but not limited to, the changes as described recently by the Torrey Planning Board:

> "The Project includes installation of a data processing facility together with the associated site improvements (grading and roads). The data processing facility will be made up of 4 structures each built on a concrete slab. Each structure will house computer processing and networking equipment (equipment only) for data processing functions. Electrical equipment will be installed (overhead and underground) including poles, transformers, and other associated equipment, that connects the data processing facility to the Greenidge Generating Facility. The total project area is 1.3 acres including roads. Power for this data processing will be the onsite Greenidge Generating Facility. A stormwater management system will also be installed as part of this project. Construction is anticipated to begin in the fall of 2020."[65]

Additionally, the Applicant has described the project as increasing Bitcoin-mining-related plant output from zero megawatts in 2018 to 132,215 megawatts in 2020.[66] In an announcement in March 2021, Greenidge predicted its mining operation would more than double by the end of the year to 45MW, and increase to 85MW by the end of 2022, to finally 95MW with the

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[60] *Id.* at 231-4.1(b)(42)(i)(C).

[61] *Id.* at 231-4.1(b)(42)(ii).

[62] *Id.* at 231-4.1(b)(33).

[63] *Id.* at 231,4-1(b)(47).

[64] *Id.* at 231-13, Tbl. 6.

[65] Town Planning Board, Town of Torrey, *Conditioned Negative Declaration* (Nov. 17, 2020), PB Final SEQRA_11162020.pdf (treichlerlawoffice.com).

[66] Letter from ERM to NYSDEC, Response to NYSDEC Request for Additional Technical Information & Suspension of Time Frame Request: Greenidge Generation LLC's Greenidge Generating Station DEC ID No. 8-5736-00004/00016 and 00017, Tbl. 6 at 12 (Aug. 2, 2021) ("ERM Letter to DEC"). Although this table is labeled "Megawatts", it shows output to the grid and to Bitcoin, and appears to refer to megawatt hours.

addition of new miners once incorporated.[67] A recent announcement boasted of future tripling of Bitcoin miners and quadrupling of computational capacity at Greenidge.[68]

The changes at the power plant to mine Bitcoin involve many physical changes, which also change the method of the Applicant's operations. Further, the Applicant is fundamentally changing its method of operation from a power plant that primarily sells electricity to the grid to a plant that primarily "mines" Bitcoin. Thus, the modification to Bitcoin-related power generation is both a physical change and a change in the method of operation under New York NSR regulations.[69]

The Facility's operations will result in a significant net emission increase in GHG emissions and local air emissions. The applicable threshold is 40 tons per year of NOx and, if this threshold is met, an additional threshold of 75,000 tons per year of CO2e. Given that Greenidge has not submitted an application for NSR modification, and has begun construction of Bitcoin operations, DEC's own regulations allow DEC to determine the baseline period against which emission increases may be measured.[70] A baseline for ozone- and smog-forming NOx emissions for the two years preceding the beginning of Bitcoin mining at Greenidge of 2018 (94 tons) and 2019 (7.9 tons) would support a finding of a significant net emissions increase if NOx emissions increased just 40 tons per year or more from the Bitcoin mining operations. For CO2, emissions have increased to over 200,000 tons per year in 2020 (228,303 tons) and 2021 (203,832) from much lower levels during 2018 (119,304 tons) and 2019 (39,405 tons). This increase in post-Bitcoin emissions well exceeds the 75,000 tons per year threshold.

Further, DEC should review whether Bitcoin-mining-related emissions of NOx and CO2e will lead to emissions exceeding emission limits for the plant, as annual NOx emissions in 2017 of 170 tons already exceeded the annual NOx permit limit of 153.9 tons. For CO2e, at full plant capacity and including upstream emissions, plant emissions could be over 1,127,061 short tons of CO2e per year.[71] For either pollutant, DEP should require the applicant submit an application for a major modification request as a result of the Facility's material change in operations.

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[67] Support.com, *Merger Announcement* at 6-7 (Mar. 22, 2021), https://www.support.com/wp-content/uploads/2021/07/Greenidge-SPRT-Merger-Announcement-032221-FINAL.pdf. *See also* Greenidge Generation Holdings Inc., Sec. & Exch. Comm'n, *Form S-1 Registration Statement* (Oct. 5 2021), https://sec.report/Document/0001193125-21-291578/ ("Our primary business objective is to grow revenue by (i) executing our plan to increase bitcoin mining capacity at our current plant to approximately 85 MW…"); *Id*. at 3 ("With the full deployment of these new [additional 11,500 S19j Pro Bitmain Antminers] miners, our total fleet is expected to comprise approximately 32,500 total miners and is expected to utilize approximately 95 MW of electricity."), https://sec.report/CIK/0001844971.

[68] Greenidge Generation, LLC, GREE *Earnings Release* (Nov. 15, 2021), https://greenidge.com/wp-content/uploads/2021/11/GREE-3Q21-Earnings-Release_11.15.2021.pdf.

[69] 6 NYCRR § 231-4.1(b)(30).

[70] *Id*. at 231-4.1(b)(7)(v).

[71] CO2e includes emissions of CO2, CH4, and N2O, calculated by applying Tier 1 calculations and default fuel characteristics from 40 C.F.R. § 98.33, annual average fuel consumption at Greenidge from 2019 (11,240 scf/MWh), 8,760 operating hours per year, 106 MW capacity, and a leak rate for upstream emissions of 3.5%.

II. THE APPLICANT'S PERMIT MUST BE DENIED BECAUSE IT IS INCONSISTENT WITH THE CLCPA AND WOULD INTERFERE WITH THE ATTAINMENT OF STATEWIDE GREENHOUSE GAS EMISSION LIMITS.

DEC must deny the Permit because the enormous increase in emissions from the Facility's material change in operations to mine proof-of-work cryptocurrency 24 hours a day, 365 days per year is wholly inconsistent with the CLCPA. Under Section 7(2) of the CLCPA, DEC is required to undergo a decision-making process in three main steps.[72] First, DEC must consider whether a permit is inconsistent with or has the potential to interfere with the attainment of the Statewide GHG emission limits. Second, should the issuance of a Title V permit be deemed inconsistent with or found to potentially interfere with the Statewide GHG emission limits, then DEC must also provide a detailed statement of justification for the Project notwithstanding the inconsistency. Third, in the event a sufficient justification is available, DEC would need to identify alternatives or GHG mitigation measures sufficient to ameliorate the impacts of the GHG emissions from the Facility. The Applicant cannot meet any of these three prongs. DEC Commissioner Seggos recognized these deficiencies in his recent statement that "Greenidge has not shown compliance with NY's climate law."[73]

A. The Significant Increase in GHG Emissions from the Facility's Change in Operations to Mine Bitcoin Is Inconsistent with the CLCPA.

Recognizing that "[c]limate change is adversely affecting economic well-being, public health, natural resources, and the environment of New York," the state legislature enacted the CLCPA to strengthen New York's statewide mandates for both emissions reductions and requiring the accelerated adoption of renewable energy generation sources.[74] The CLCPA mandates that New York obtain 70% of its power from renewable energy resources by 2030[75] and a zero-emissions electricity sector by 2040.[76] Across all sectors, the CLCPA limits GHG emissions to 60% of 1990 levels by 2030 and 15% of 1990 emissions by 2050.[77]

The CLCPA's aggressive GHG emissions reduction targets are on a short timeline, requiring immediate reductions rather than allowing additional emissions. As discussed more fully below in Section II(C), the Facility's increased fossil-fuel generation and a permit allowing 641,878 tons of GHG emissions annually is inconsistent with the CLCPA and

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[72] *See* DEC's Testimony before the N.Y. State Assembly, *Cryptocurrency Mining and the Climate Leadership and Community Protection Act* (Oct. 27, 2021) ("DEC's Cryptocurrency Testimony"). https://www.dec.ny.gov/docs/administration_pdf/cryptocurrency.pdf; DEC, *Notice of Denial of Title V Air Permit, Astoria Gas* at 2 (Oct. 27, 2021) https://www.dec.ny.gov/docs/administration_pdf/nrgastoriadecision10272021.pdf ("Astoria Title V Permit Denial").

[73] Twitter, DEC Commissioner Basil Seggos (Sept. 8, 2021), https://twitter.com/basilseggos/status/1435724739352449025.

[74] CLCPA § 1.

[75] N.Y. P.S.L. § 66-p(2). The CLCPA also establishes specific benchmarks for the adoption of renewables, including nine gigawatts of offshore wind by 2035, six GW of solar by 2025, and three GW of energy storage by 2030. N.Y. E.C.L. § 75-0103(13)(e).

[76] N.Y. P.S.L. § 66-p(2).

[77] N.Y. E.C.L. §§ 75-0107(1).

frustrates efforts to reduce state GHG emissions and the effort to transition to a zero-emissions electricity sector.

The CLCPA also requires upstream emissions from a fossil fuel-fired electric generating facility to be included in the calculation of GHG emissions.[78] Upstream emissions include "greenhouse gases produced outside of the state that are associated with the generation of electricity imported into the state and the extraction and transmission of fossil fuels imported into the state."[79] Historically, upstream emissions make up around 30–40% of sectoral emissions for electricity generation.[80] As discussed below in Section II(C), the Applicant has not made an adequate showing that its upstream emissions are consistent with the CLCPA.

DEC "recognizes that it is critical to consider our next steps on cryptocurrency mining in the broader context of the CLCPA and how it will impact our ability to meet our emission reduction requirements and clean energy goals."[81] The insatiable energy appetite of proof-of-work cryptocurrency mining, and the significant increase of GHG emissions from that mining when burning fossil fuels, at a time when New York State requires an overall reduction in emissions is simply not compliant with the CLCPA.[82]

B. DEC Must Apply CLCPA Section 7 Analysis to This Permit Application.

DEC is required to undertake a CLCPA analysis for all permits it issues, to determine whether its decision to issue the permit is consistent with the CLCPA's requirements to rapidly slash GHG emissions and prioritize protecting disadvantaged communities from the effects of GHG and co-pollutant emissions. There is no exception in the statute for permit renewals or modifications. Section 7 of the CLCPA requires that state agencies "in considering and issuing permits, licenses, and other administrative approval and decisions" must apply the terms of the CLCPA.

The drastic reductions required under the CLCPA will not come from permitting decisions on new polluting facilities, or major modifications alone. Existing facilities must

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[78] The CLCPA requires accounting of GHG emissions associated with the extraction and transmission of fossil fuels imported into the state using a 20-year time horizon. This form of net accounting necessitates using upstream fossil fuel cycle factor data that cover extraction, processing and transmission/distribution of natural gas, coal, and petroleum into the state. 6 NYCRR § 496.4; *See also* N.Y. E.C.L. § 75-0105(3); Astoria Title V Permit Denial at 5.

[79] N.Y. E.C.L. § 75-0101(13).

[80] N.Y. State Climate Action Council, July 22, 2021 Meeting Presentation at 27, https://climate.ny.gov/-/media/Migrated/CLCPA/Files/2021-07-22-CAC-Meeting-Presentation.ashx.

[81] DEC's Cryptocurrency Testimony at *2.

[82] For example, in Danskammer's Title V Permit Denial, DEC stated, "While achieving the Statewide GHG emissions limits requires an overall reduction in GHG emissions from current levels, the Project itself would result in a substantial increase in GHG emissions from just this one single GHG emission source in 2030." DEC, *Notice of Denial of Title V Air Permit, Danskammer Energy Center* at 9 (Oct. 27, 2021), https://www.dec.ny.gov/docs/permits_ej_operations_pdf/danskammerdecision102721.pdf. Here, Greenidge would be seeking to substantially increase GHG sources from one plant, for one purpose—to mine Bitcoin—at absolutely no benefit to the public.

also reduce their emissions as well. The CLCPA's mandatory emission reductions, under DEC regulations, limit statewide emissions in 2030 to no more than 245.87 million metric tons of CO_2 equivalent,[83] from an estimated 348 million metric tons in 2015,[84] and facilities that currently hold air permits contribute substantially to the total emissions. Thus, the requirements of the CLCPA apply to DEC's review of the draft permit here. DEC's Commissioner has confirmed that when publishing the draft permit: "@NYSDEC wants comments on the proposal's compliance with NY's climate law #CLCPA."[85]

C. The Facility's Material Change of Operations Has Resulted in Increased GHG Emissions.

As DEC recently testified before the State Assembly: "New York State is at a vital point in its energy transition, and significant growth of this type of energy intensive industry will create additional pressures on the ability to meet the ambitious and necessary requirements of the CLCPA."[86]

As the table on page 4 shows, the Facility's GHG emissions are now an order of magnitude above the Facility's emissions even after its reactivation in 2016, when it provided limited service to the grid for a few years. Today, the GHG emissions at the Facility are skyrocketing, and the Applicant is ramping up operations every day.[87] According to Applicant's emissions reporting to DEC, there was an approximately ten-fold increase in GHG emissions just in 2020.[88] The Applicant's 2020 emissions were that high even though the Facility was only operating at approximately 17% of its total capacity. For comparison, the Facility's emissions in 2020 equaled the amount of emissions of an additional 51,027 passenger vehicles on the road for one year.[89]

In just the first six months of 2021, after operating around the clock, the Facility's GHG emissions matched the entire year's worth of emissions from 2018. And as noted above, in just the last three months of reported data alone (July through September 2021), the Facility's emissions nearly doubled—from 119,013 tons of CO2 to 203,832 tons of CO2.[90]

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[83] 6 NYCRR Part 496.5.

[84] *Id.*

[85] DEC Commissioner Basil Seggos, @BasilSeggos, Twitter, (Sept. 8, 2021), https://twitter.com/basilseggos/status/1435724739352449025.

[86] DEC's Cryptocurrency Testimony at *2.

[87] *See* Peter Mantius, *NASDAQ Market Goes Wild Over Greenidge's Plan to Go Public, Expand Bitcoin Mining 25-Fold*, Water Front Online (Mar. 22, 2021), https://waterfrontonline.blog/2021/03/22/nasdaq-market-goes-wild-over-greenidges-plan-to-go-public-expand-Bitcoin-mining-25-fold/.

[88] Greenidge Generation LLC, *2020 Annual Compliance Certification Report to DEC* (1 Jan. 2020 through Dec. 2020); Greenidge Generation LLC, *2020 Semi-Annual Compliance Certification Report to DEC* (1 July 2020 through 31 Dec. 2020).

[89] *See* EPA, *Greenhouse Gas Equivalencies Calculator* (updated March 2021), https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator.

[90] EPA, *Power Sector Emissions Data*, https://www.epa.gov/airmarkets/power-sector-emissions-data.

The draft permit would allow 641,878 tons of carbon dioxide equivalent ("CO2e"). In comparison, before retiring as a coal plant, Greenidge emitted 455,795 tons of CO2 in 2009 and 599,105 tons of CO2 in 2010. This Facility should not be permitted to pollute as much as or even more than it was emitting as a coal-fired power plant.

i. The Facility's Increase in Emissions Will Interfere with the State's Transition to a Zero-Emissions Electricity Sector.

Recently, forty-five state legislators sent a letter stating:

> "We cannot meet these critical CLCPA goals to break our current dependency on fossil fuels as a state if we are simultaneously significantly increasing our total state energy consumption from fossil fuel sources."[91]

The State must ensure a substantial *decrease*—not increase—in fossil-fueled power generation. Existing fossil resources must retire and/or significantly curb generation to meet the CLCPA's 2030 requirements.[92] Allowing increased emissions from the Facility is flatly incompatible with a zero-emission electricity sector because gas plants emit both GHGs and co-pollutants, including nitrogen oxides (NO_x).[93] Ultimately, allowing a gas plant that was once retired to significantly increase its air pollution and GHG emissions, just as the State's renewable energy needs become most acute, makes it more—rather than less—difficult to achieve the 2040 zero-emissions electricity mandate.

As DEC has recently acknowledged:

> "To achieve the State's climate change and clean energy policies as outlined in the CLCPA, the State needs to continue to accelerate its ongoing transition away from natural gas and other fossil fuels. . . The continued long-term use of fossil fuels to produce electricity . . .is inconsistent with the State's laws and objectives, including the statutory requirement that all electricity in the State be emission-free by 2040."[94]

Any increase in fossil-fueled power generation is, by definition, inconsistent with the CLCPA. Any additional GHG emissions from the burning of fossil fuels will frustrate efforts to reduce state GHG emissions as well as the transition to a zero-emissions electricity sector by 2030—in 9 short years.

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[91] Letter from Assembly Member Anna R. Kelles & State Senator Kevin S. Parker et al. to Gov. Kathy Hochul & DEC Commissioner Basil Seggos, re: Greenidge Generating Station (Oct. 6, 2021).

[92] *See* CLCPA § 7.

[93] EPA air emissions data reflecting the Applicant's 2020 emissions at 50 tons of NOx and 282,303 short tons of CO2. EPA's *Power Sector Emissions Data*, https://www.epa.gov/airmarkets/power-sector-emissions-data.

[94] Astoria Title V Permit Denial at 11.

The Applicant, while recognizing the State's 'zero emissions by 2040' mandate, provides no information detailing how they seek to achieve such goals. Rather, Applicant merely states that "the company will of course strive to comply with the zero-emission goal established for the entire statewide energy sector by 2040."[95] Yet the draft permit allowing 641,878 tons of GHGs per year is plainly inconsistent with the CLCPA.[96]

DEC recently denied a Title V air permit for the repowering of a gas peaker plant in Astoria, Queens, New York that has a very similar GHG emissions profile as here—the proposed permit sought permission to emit 716,520 tons per year of GHGs.[97] The Astoria air permit was denied in part because the application did not include "a specific plan in place to comply with the requirements of the [CLCPA]"[98] The Applicant's draft permit must also be rejected under Section 7(2) of the CLCPA. Any substantial increases in GHG emissions are inconsistent with the CLCPA's statutory mandate.

If upstream emissions and methane leaks are included in the calculations, if the Facility ran at full capacity, projected emissions would be even greater—up to 1,127,061 short tons of CO2e per year.[99] This provides another useful emission profile comparison to a recently denied Title V Air Permit -- Danskammer Energy, LLC applied for a Title V air permit for a proposed repowering of a 536 MW natural gas-fired generation facility located in Newburgh, New York.[100] In assessing Danskammer's GHG emissions, DEC noted that their proposed emissions, including upstream values, were around 1.085 million short tons of CO2e and that emissions of this amount fundamentally "constitute a substantial and direct source of new GHG emissions in the state. As a result . . . the Project is inconsistent with or would interfere with the attainment of the Statewide GHG emission limit for 2030."[101] The same determinations, for the same level of emissions, need to be made with this draft permit.

The business model at Greenidge may be one of the first of its kind, but it certainly will not be the last. As a recent letter from state legislators to Governor Hochul and DEC points out: "There are 30 retired plants in upstate NY and 19 in NYC and Long Island that could be targeted for future [proof-of-work] cryptocurrency mining sites."[102] As just one example, Digihost International Inc. and Fortistar North Tonawanda Inc. also seek to materially change

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[95] ERM, Greenidge Generation LLC's Greenidge Generating Station, *Response to NYSDEC Request for Additional Technical Information & Suspension of Time Frame Request* at 9 (Aug, 2, 2021) ("ERM Letter to DEC"), https://www.dec.ny.gov/docs/permits_ej_operations_pdf/greenidgeclcpaassmnt.pdf.

[96] Astoria Title V Permit Denial at 11.

[97] AECOM, *Draft Supplemental Environmental Impact Statement: Astoria Replacement Project* at 3-18 tbl.3.1-6: Project & Facility Potential Annual Emissions (June 2021), https://www.nrg.com/assets/documents/legal/astoria/00_2021/astoria-draft-dseis-06-30-2021.pdf.

[98] *Id.* at 7.

[99] CO2e includes emissions of CO2, CH4, and N2O, calculated by applying Tier 1 calculations and default fuel characteristics from 40 C.F.R. § 98.33, annual average fuel consumption at Greenidge from 2019 (11,240 scf/MWh), 8,760 operating hours per year, 106 MW capacity, and a leak rate for upstream emissions of 3.5%.

[100] DEC, *Notice of Denial of Title V Air Permit, Danskammer Energy Center* at 9 (Oct. 27, 2021), https://www.dec.ny.gov/docs/permits_ej_operations_pdf/danskammerdecision102721.pdf.

[101] Danskammer Title V Permit Denial at 8.

[102] Letter from Assembly Member Anna R. Kelles & State Senator Kevin S. Parker et al. to Gov. Kathy Hochul & DEC Commissioner Basil Seggos, re: Greenidge Generating Station (Oct. 6, 2021).

the operations at a power plant in the City of North Tonawanda to mine proof-of-work cryptocurrency—seeking approval at the Public Service Commission,[103] and seeking a Title V Air permit.[104] There are also several power plants in the State using hydroelectric energy generation to mine proof-of-work cryptocurrency.[105]

In March of this year, Gavin Donohue, the President and CEO of the Independent Power Producers of New York (IPPNY), penned an opinion in the Albany Times Union wherein he described the Facility's conversion to proof-of-work cryptocurrency mining at a fossil-fueled power plant as a "model for innovation."[106] New York State and DEC cannot greenlight such operations in contravention of the CLCPA.

In addition, granting the renewed permit would interfere with the achievement of a net zero electric sector because it increases New York's dependence on fracked gas resources for capacity generation. New York State currently generates more than half of its capacity basis from gas plants.[107] Without a focus now on meeting the 2030 mandate, the State risks retaining and installing more gas capacity than could possibly run—and less renewable capacity than the State must run—to achieve a minimum of 70% renewable generation and ensure that overall statewide emission reductions reach 40% by 2040.

ii. Cumulative Emissions from the Material Changes at the Facility Are Inconsistent with the CLCPA and Would Interfere with Statewide GHG Emissions Limits.

On a cumulative basis, under the emissions limit in the draft permit—641,878 tons of CO2e per year, the material change in the Applicant's use of the power plant will directly result in:

- 5,776,902 tons of CO2 emissions for the years 2022-2030; and
- 10,911,926 tons of CO2 emissions for the years 2023-2039.

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[103] N.Y. Public Serv. Comm'n, *Petition of Fortistar North Tonawanda Inc. & Digihost Int'l Inc. for a Declaratory Ruling*, Case No. 21-M-0238, https://documents.dps.ny.gov/public/MatterManagement/CaseMaster.aspx?MatterCaseNo=21-M-0238&CaseSearch=Search.

[104] NAES, *Title V and Title IV Permits Renewal Application of Fortistar North Tonawanda Cogeneration Facility*, 1070 Erie Ave, North Tonawanda, NY 14120, Title V Permit ID: 9-2912-00059/00013, Title IV Acid Rain Permit ID: 9-2912-00059/00016, Facility DEC ID: 929120000 (Apr. 21, 2021), submitted to and on file with the New York State Department of Environmental Conservation (NYSDEC), Regional Permit Administrator, Region 9 Headquarters, Division of Environmental Permits, 270 Michigan Avenue, Buffalo, NY 14203-2915).

[105] *See, e.g.*, Coinmint, *Inside the Massive Crypto-Mining Plant in Massena, N.Y.* [video] (Feb. 2019) https://www.youtube.com/watch?v=qa90X3pkAQ8.

[106] Gavin Donohue, *There's a Role for Natural Gas in the Renewable Energy Future*, Albany Times Union (Mar. 2, 2021) https://www.timesunion.com/opinion/article/There-s-a-role-for-natural-gas-in-the-15993563.php.

[107] *See* U.S. Energy Info. Admin., *N.Y. State Profile and Energy Estimates*, https://www.eia.gov/state/analysis.php?sid=NY#20.

Using instead the estimated combined plant and upstream emissions of 1,127,061 metric tons of CO2e per year,[108] on a cumulative basis, the material change in the Applicant's use of the power plant will directly result in:

- 10,143,549 metric tons of CO2e emissions for the years 2022-2030; and
- 19,160,037 metric tons of CO2e emissions for the years 2023-2039.

This is in direct contrast to this Facility's CO2 emissions in 2011, 2012, 2013, 2014, 2015 and 2016—which were zero.

As DEC recently stated in the Astoria permit denial letter, "[u]nder the [CLCPA], again, given the required reductions in Statewide GHG emissions pursuant to ECL Article 75, these estimates constitute a substantial amount of new GHG emissions that would make the Statewide GHG emissions limits more difficult to achieve."[109] There is no logical basis to treat this Facility's emissions any differently.

iii. The Facility's Limited Service to the Grid Is Also Not Consistent with the CLCPA's Mandates.

NYISO defines "[p]eaking power plants, also known as peaker plants or just 'peakers'" as "power plants that generally run when there is a high demand—known as peak demand—for electricity."[110] Peakers often only run during very hot or very cold weather, and usually come online between 1% and 20% of the time (known as a "capacity factor").[111] Before mining proof-of-work cryptocurrency, the Facility's capacity factor was 17% in 2017, 19% in 2018, and 6% in 2019.[112]

Aside from its proof-of-work cryptocurrency mining operations 24 hours a day, 365 days a year, which is plainly CLCPA-non-compliant, the Facility's limited and likely unnecessary service to the grid as a peaker plant is also inconsistent with the CLCPA's statewide GHG emissions reductions mandates. As stated above, the CLCPA's emission reduction mandates in 2030 are rapidly approaching. As described in Section II(I) below, there are abundant renewable energy resources in Zone C, adequate and upgraded, local transmission, as well as battery storage options that can retire fossil-fueled peakers in the region, easing the transition to a zero-emission electricity sector in 2040 as mandated by the CLCPA. Extending the use of and reliance on fossil fuel generation at this Facility, in any

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[108] As noted above, CO2e includes emissions of CO2, CH4, and N2O, calculated by applying Tier 1 calculations and default fuel characteristics from 40 C.F.R. § 98.33, annual average fuel consumption at Greenidge from 2019 (11,240 scf/MWh), 8,760 operating hours per year, 106 MW capacity, and a leak rate for upstream emissions of 3.5%.

[109] Astoria Title V Permit Denial at 8.

[110] *See* NYISO, *Power Trends*, Glossary, https://www.nyiso.com/documents/20142/6386402/2020-power-trends-glossary.pdf/055f525f-3a5a-f73f-54f0-728a2360de7f.

[111] *See id.* According to another definition, for federal acid rain regulations, a combustion unit is a peaking unit if it has an average annual capacity factor of 10% or less over the past three years and an annual capacity factor of 20% or less in each of those three years. 40 C.F.R. § 72.2.

[112] See table on page 4, *supra*.

capacity, will prevent the State from making the necessary progress toward a zero-emissions electricity sector.

D. The Facility's GHG Emissions Must Be Considered with Reference to Statewide Emissions and Reduction Goals.

Greenidge argues that its current onsite and upstream potential CO2e emissions are already substantially lower than the Facility's actual emissions in 1990 and that it has reduced its onsite GHG emissions in excess of 75%, comparing its potential permitted onsite emissions to its 1990 baseline actual emissions.[113] This comparison is neither meaningful nor based in pertinent reality when the Facility did not operate for multiple years before its reactivation in 2017 and was a baseload coal-fired power plant before 2011.

The GHG reduction targets of the CLCPA are ***statewide*** targets, not targets for each individual emitter, and DEC's responsibility is to ensure an aggregate reduction from all emitting sources, in all sectors, in the next 9 and 19 years. The Applicant's statement that their potential to emit would be lower than their 1990 emissions is a self-serving attempt to use the Facility's history as a large coal-fired baseload power plant to mask the fact that they plan to increase their emissions sharply to mine proof-of-work cryptocurrency, with no benefit to the grid or otherwise. As argued above, allowing the Applicant to increase GHG emissions in the absence of a compelling justification will frustrate the State's ability to meet the GHG reduction targets established by the CLCPA.

The Applicant further asserts that their permit is consistent with, and will not interfere with, the attainment of the statewide GHG emissions targets established by the CLCPA, in part, because the Facility's potential CO2e emissions "comprise only 0.23% of the total statewide 2030 GHG emissions target."[114] This statement ignores the fact that every individual emitter in New York contributes just a small portion to the State's overall GHG emissions. Greenidge has failed to provide a compelling justification for why it should receive special permission to increase its emissions from its new operations. These increased emissions would place an added burden on every other entity in the state to further reduce their emissions to compensate for this Facility that serves little-to-no compelling public interest or benefit, and would interfere with the GHG emission targets established by the CLCPA.

DEC must reject the Applicant's self-serving claims that its own 1990 emissions—as a coal-fired baseload plant—not its recent service as a gas-fired peaker plant, and not state-wide emissions, are a meaningful baseline or guideline, and affirm that GHG emissions reductions from every GHG polluter in New York is critical to meeting CLCPA goals.

[113] ERM Letter to DEC at 12.

[114] *Id.* at 2.

E. The Significant Impacts on the Environment from the Facility's Material Change in Operations Is Not Necessary Nor Justified.

Since the Facility is wholly inconsistent with the CLCPA and will interfere with the Statewide GHG emission limits, the Applicant must offer a sufficient basis for justification. No such justification has been provided.

i. The Significant Increase in GHG Emissions from the Facility's Proof-of-Work Cryptocurrency Mining Is Unnecessary and Unjustified.

As described above, under CLCPA Section 7(2), if DEC intends to approve a permit for a Facility that is inconsistent with or interferes with attainment of the CLCPA's statewide GHG emissions reductions mandates, it "shall provide a detailed statement of justification as to why such limits/criteria may not be met . . ."

There is likely no need for this plant for grid service, and neither the Applicant nor DEC could justify mining proof-of-work cryptocurrency as "advancing" climate goals as it emits more and more GHG emissions every day, when the Facility had zero emissions from 2011 through 2016 and only operated a limited amount of days since reactivating in 2017 before beginning to mine Bitcoin.

DEC's action on the Title V permit will have far-reaching impacts across the state and beyond. Bitcoin, the cryptocurrency currently mined at Greenidge, is a type of proof-of-work cryptocurrency mining method that consumes tremendous amounts of energy, which in turn generates substantial amounts of GHG emissions when such operations are powered either directly or indirectly by fossil fuels.[115] Bitcoin mining today uses 133.68 terawatt hours per year of electricity globally, more than three times as much as it did at the beginning of 2019.[116] Bitcoin mining's energy consumption alone constituted:

- approximately half as much electricity as all of the United Kingdom,[117]

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[115] *See, e.g.*, Andrew Ross Sorkin et al., *Why Bill Gates Is Worried About Bitcoin*, N.Y. Times (Mar. 9, 2021), https://www.nytimes.com/2021/03/09/business/dealbook/bill-gates-bitcoin.html ("Bitcoin uses more electricity per transaction than any other method known to mankind."). There are less energy-intensive cryptocurrency methods, namely proof-of-stake mining, which uses 95–99% less energy than proof-of-work cryptocurrency like Bitcoin. *See, e.g.*, Ezra Kaplan, *Cryptocurrency Goes Green: Could 'Proof of Stake' Offer a Solution to Energy Concerns?*, NBC News (May 25, 2021), https://www.nbcnews.com/tech/tech-news/cryptocurrency-goes-green-proof-stake-offer-solution-energy-concerns-rcna1030; *Bitcoin Energy Consumption Index*, Digiconomist (last updated Nov. 2021), https://digiconomist.net/bitcoin-energy-consumption.

[116] Katie Martin & Billy Nauman, *Bitcoin's Growing Energy Problem: 'It's A Dirty Currency'*, Fin. Times (May 20, 2021), https://www.ft.com/content/1aecb2db-8f61-427c-a413-3b929291c8ac (citing Cambridge Bitcoin Electricity Consumption Index, https://cbeci.org/); Brian Spegele & Caitlin Ostroff, *Bitcoin Miners Are Giving New Life to Old Fossil-Fuel Power Plants*, Wall St. J. (May 21, 2021), https://www.wsj.com/articles/Bitcoin-miners-are-giving-new-life-to-old-fossil-fuel-power-plants-11621594803.

[117] Katie Martin & Billy Nauman, *Bitcoin's Growing Energy Problem: 'It's A Dirty Currency'*, Fin. Times (May 20, 2021), https://www.ft.com/content/1aecb2db-8f61-427c-a413-3b929291c8ac.

- more electricity per year than each of the following countries: Sweden, Chile, the Netherlands, and Argentina;[118]
- nearly as much as all data centers in the world this year;[119] and
- more than Google, Apple, Facebook, and Microsoft combined.[120]

A group of researchers at the University of New Mexico has put a price on that pollution, estimating that every dollar of Bitcoin value mined accounts for 49 cents' worth of health and climate damage in the U.S.[121] Indeed, a recent study published in Nature Climate Change found that Bitcoin mining has the potential, single-handedly, to push the planet past the targets set by the Paris agreement.[122] There is no justification for this project that could satisfy the mandates of the CLCPA.

ii. The Significant Water Impacts and Noise Impacts, as well as the Electronic Waste from the Facility's New Proof-of-Work Cryptocurrency Mining Are Unnecessary and Unjustified.

As described in Section III below, there are immense water and noise impacts in addition to the immense volume of GHG emissions from the new operations at this Facility that cannot justify the material change in operations at this Facility. In addition to that, New York State will also have to grapple with increasing amounts of electronic waste ("e-waste") from proof-of-work cryptocurrency mining, which are not justifiable. E-waste can cause significant harm to the environmental and human health.[123]

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[118] *See, e.g.*, Jon Huang et al., *Bitcoin Uses More Electricity Than Many Countries. How Is that Possible?*, N.Y. Times (Sept. 3, 2021) https://www.nytimes.com/interactive/2021/09/03/climate/bitcoin-carbon-footprint-electricity.html; Cambridge Ctr. for Alt. Fin., *Comparisons*, Cambridge Bitcoin Electricity Consumption Index, https://ccaf.io/cbeci/index/comparisons.

[119] Alex de Vries, *Bitcoin Boom: What Rising Prices Mean for the Network's Energy Consumption*, 5 Joule 509 (Mar. 2021) https://www.cell.com/joule/fulltext/S2542-4351(21)00083-0.

[120] Gretchen Morgenson, *Some Locals Say a Bitcoin Mining Operation Is Ruining One of the Finger Lakes. Here's How*, NBC News (July 5, 2021), https://www.nbcnews.com/science/environment/some-locals-say-Bitcoin-mining-operation-ruining-one-finger-lakes-n1272938; *see also* Brian Spegele & Caitlin Ostroff, *Bitcoin Miners Are Giving New Life to Old Fossil-Fuel Power Plants*, Wall St. J. (May 21, 2021), https://www.wsj.com/articles/Bitcoin-miners-are-giving-new-life-to-old-fossil-fuel-power-plants-11621594803.

[121] Rachel Whitt, *The Environmental Cost of Cryptocurrency Mines*, Univ. of N.M. (Nov. 12, 2019) https://news.unm.edu/news/the-environmental-cost-of-cryptocurrency-mines.

[122] Camilo Mora et al., *Bitcoin Emissions Alone Could Push Global Warming Above 2°C*, 8 Nature Climate Change 931 (2018), https://www.nature.com/articles/s41558-018-0321-8.

[123] *Id. See also*, Megan Avakian, *E-waste: An Emerging Health Risk,* Nat'l Inst. of Env't Health Scis. (Feb. 2014), https://www.niehs.nih.gov/research/programs/geh/geh_newsletter/2014/2/spotlight/ewaste_an_emerging_health_risk_.cfm; *Understanding e-waste,* https://www.epa.gov/international-cooperation/cleaning-electronic-waste-e-waste ("Without proper standards and enforcement, improper practices may result in public health and environmental concerns, even in countries where processing facilities exist.").

Bitcoin mining generates approximately 31 metric kilotonnes of e-waste every year, which is comparable to the e-waste produced by the whole country of the Netherlands.[124] The mining devices used for Bitcoin quickly go obsolete, often lasting only two years.[125] The e-waste generated from Bitcoin mining is significant, and experts predict it will continue to increase as Bitcoin mining operations increase in scale.[126]

iii. The Facility's "Peaker" Service Is Likely Not Necessary.

The Facility's limited service as a peaker does not serve either short-term or long-term power generation reliability needs. Ensuring grid reliability is a multifaceted engagement overseen by the New York Independent System Operator ("NYISO"). Typically, a utility will undergo a NYISO System Reliability Impact Study in order to justify and support a claim of reliability.[127] Greenidge cannot claim that their plant is necessary and justified for reliability purposes without having undergone a recent System Reliability Impact Study.

Without a NYISO System Reliability Impact Study, a reliability need could be made based on other NYISO-initiated studies in the Comprehensive Reliability Planning Process.[128] NYISO's Comprehensive Reliability Planning Process typically is comprised of four components: (1) the Local Transmission Planning Process; (2) the Reliability Planning Process; (3) the Congestion Assessment and Resource Integration Study; and (4) the Public Policy Transmission Planning Process. Most important to peaker service and reliability is the Reliability Planning Process. The Reliability Planning Process includes a Reliability Needs Assessment, which is a biennial study that evaluates the resource adequacy and transmission system security of New York's bulk power transmission facilities. These studies, and the Reliability Needs Assessment, piece together relevant state laws, retiring and upcoming retirements of peaker and black start plants, future trends in the market, and other potential reliability concerns in order to highlight the greatest weaknesses of the grid and address them accordingly. These studies demonstrate many of the congestion and reliability constraints

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[124] BBC, *Bitcoin Mining Produces Tons of Waste*, (Sep. 20, 2021), https://www.bbc.com/news/technology-58572385; Alex de Vries & Christian Stoll, *Bitcoin's Growing E-waste Problem*, 175 Res., Conservation & Recycling 105901 (Dec. 2021), https://www.sciencedirect.com/science/article/pii/S0921344921005103; *Bitcoin Electric Waste Monitor*, Digiconomist, https://digiconomist.net/Bitcoin-electronic-waste-monitor/.

[125] Joachim Klement, *Geo-Economics: The Interplay between Geopolitics, Economics, and Investments* at 106 (Apr. 2021).

[126] Mark Peplow, *Bitcoin Poses Major Electronic-Waste Problem*, Chem. & Eng'g News (Mar. 14, 2019), https://cen.acs.org/environment/sustainability/Bitcoin-poses-major-electronic-waste/97/i11.

[127] *See* NYISO, *2020 Active Interconnection Queue*, https://www.nyiso.com/documents/20142/1394430/NYISO-Interconnection-Queue-11-19-20.xlsx/b5d2d932-225a-10e6-5b45-075acb4fb4a9?t=1608559880214 (showing that Greenidge has no available reliability study whereas other Zone C generation utilities do). In 2015, Greenidge underwent a form of a reliability study that looked at effects to the grid upon the repowering of a power plant. However, Greenidge has not provided the DEC with a recent reliability study to demonstrate that the plant is serving a reliability need and that their continued operation is required to fill it. Barry Cassell, *Greenidge Generation Looks to Re-Start Shut Unit at New York Power Plant*, Transmission Hub (Sept. 10, 2015), https://www.transmissionhub.com/articles/2015/09/greenidge-generation-looks-to-re-start-shut-unit-at-new-york-power-plant.html.

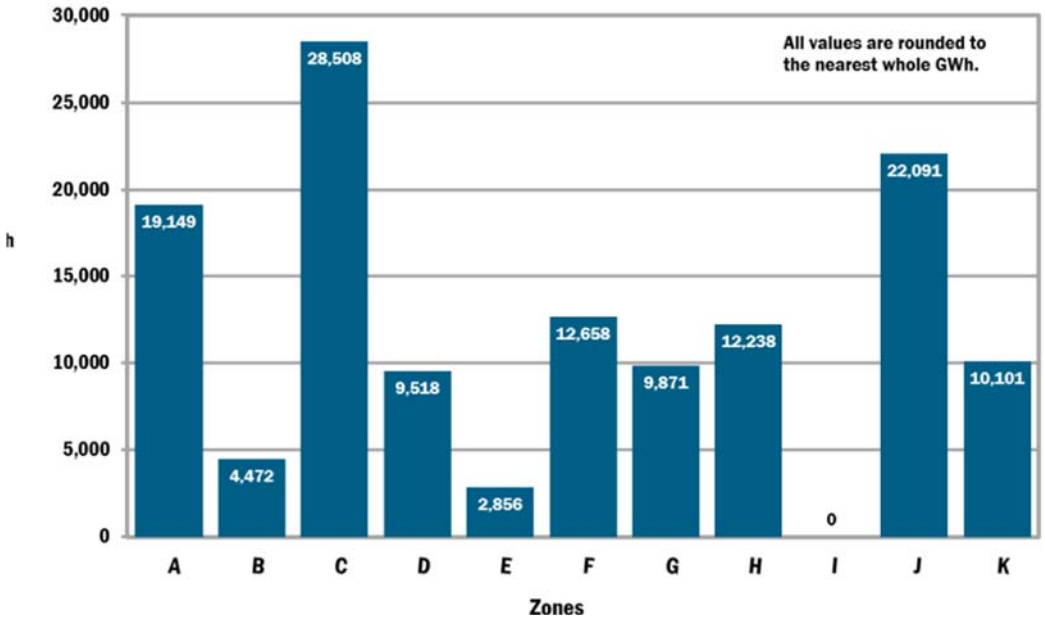
[128] NYISO, *Manual 26: Reliability Planning Process Manual* (Apr. 2021), https://www.nyiso.com/documents/20142/2924447/rpp_mnl.pdf.

within Zone C have been remedied. Since the Applicant has not provided a reliability study to justify the need for ongoing operation and NYISO's own records highlight significant renewable energy and transmission and distribution improvements within Zone C, the Facility cannot show reliability reasons for any justification, and it would seem unlikely that they would be deemed so given the recent evidence to the contrary.

First and foremost, this plant did not operate in 2011, 2012, 2013, 2014, 2015, or 2016 and NYISO Zone C—where Greenidge is located—suffered no local load constraints nor shortages of energy production during that time.[129] Rather, the grid adapted to the retirement of the coal-fired plant in 2010. In fact, when the Facility began operating again in 2017, the Applicant stated publicly that they were not producing energy for the grid because it was too costly for them to be able to return a profit: "with natural gas prices relatively high and electric prices comparatively low, Greenidge has not been generating electricity for public consumption."[130] This highlights how unnecessary the Facility is for peaker service.

Second, NYISO Zone C has some of the highest annual net energy production in New York State, as shown below:[131]

Figure III-1: 2020 NYCA Energy Production by Zone



[129] In 2011, when Greenidge retired, Zone C had one of its highest annual energy consumptions of 16,167GWh.

[130] John Christensen, *Power Plant to Add Data Center*, Chron. Express (Jul. 31, 2019), https://web.archive.org/web/20190731061907/https:/www.chronicle-express.com/news/20190731/power-plant-to-add-data-center#expand.

[131] NYISO, 2021 Load & Capacity Data Report ("Gold Book") at 102, 104 (Apr. 2021) (showing a total of 28,508 GWh of net energy generation in Zone C in 2020).

Zone C's installed capacity far out-strips local peak demand.[132] Furthermore, local demand is projected to decrease in the future.[133] NYISO's Congestion Assessment and Resource Integration Study found no local concerns. The main load constraints and transmission congestion concerns that NYISO is studying are located in Western New York, on the eastern connect and in Zone E.[134] In contrast, Zone C's energy consumption in 2020 was 15,450 GWh, with a margin of over 10,000 GWh of excess generation.[135]

Lastly, NYISO approved a 34.5kV transformer addition and substation reconfiguration for the nearby NYSEG Oakdale facility.[136] This project improves reliability by enabling increased load transfers from the bulk power grid to Zone C consumers.

All of these projects have aided in strengthening the resiliency and reliability of the bulk power grid, as well as mitigating any losses of load expectation within Zone C. Thus, despite the Applicant's claim of the need for peaker service, Zone C is well-situated to have a reliable grid without Greenidge.

The Applicant claims that its Facility is beneficial to nearby communities because of economic resources, mostly via job opportunities. However, as DEC recently highlighted in their testimony to the Legislature:

> "Compared to other energy intensive industries, or conventional data center operations, cryptocurrency mining has relatively low permanent job creation rates. The volatile nature of cryptocurrency valuations can lead to surging growth when valuations are high and devastating impacts when those valuations crash. This was witnessed in other parts of the country over the span of just two years between 2017 and 2018."[137]

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[132] NYISO's 2021 Gold Book indicates that the 2020 peak demand in Zone C was just 2,752 MW, while summer capability totaled 6,380.7 MW. *Compare id.* at 24, with *id.* at 100.

[133] NYISO projects that statewide electric demand will decrease slightly between 2020 and 2030 before slowly increasing due to increased electrification. Additionally, NYISO forecasts decreased annual and summer peak demand from 2021 values through at least 2039. NYISO, *Power Trends 2021: New York's Clean Energy Grid of the Future* at 12, 23-24 (2021), https://www.nyiso.com/documents/20142/2223020/2021-Power-Trends-Report.pdf/471a65f8-4f3a-59f9-4f8c-3d9f2754d7de; Max Schuler & Chuck Alonge, NYISO, *Long Term Forecast Update*, at slide 34 (Nov. 19, 2020), https://www.nyiso.com/documents/20142/17044621/LT-Forecast-Update.pdf.

[134] NYISO, *2019 Congestion Assessment and Resource Integration Study (CARIS)* at 2 (July 2020), https://www.nyiso.com/documents/20142/2226108/2019-CARIS-Phase1-Report-Final.pdf.

[135] NYISO *Gold Book* at 23.

[136] *Id.* at 13; NYISO, *2017 Interim Area Transmission Review of the New York State Bulk Power Transmission System* (Oct. 24, 2017), https://www.nysrc.org/pdf/MeetingMaterial/RCMSMeetingMaterial/RCMS%20Agenda%20213/NYISO_2017_Interim_ATR_Draft_24oct2017.pdf.

[137] DEC's Cryptocurrency Testimony at *3.

Finally, it is important to note that though Greenidge claims to provide a myriad of benefits under a guise of reliability, the Facility rarely supplies power to the grid at present, due to the economic incentives of Bitcoin mining. Greenidge CFO, Tim Rainey has stated that:

> "Although there is no fixed threshold of revenue from selling power that would make us want to sell the power instead of mine crypto, currently that number would be over $100 per MWh of power that we generate."[138]

The Applicant essentially suggests that they would only supply power to the grid when their profit margin is able to top that of Bitcoin mining. That is both highly unlikely in the current financial environment and decidedly not in the public interest—whether at the local, state, or planet level—given the enormous GHG emissions of this plant as it increases its mining operations. It is also highly suggestive of the lack of merit for any grid reliability claim.

F. The Applicant Has Not Identified Adequate Alternatives or Mitigation Measures That Comply with the CLCPA

The Applicant's proposed GHG mitigation measures fail to bring the Facility's new operations into compliance with the requirements of CLCPA Section 7(2). None of the proposed mitigation measures offered by the Applicant would even approach mitigating the 641,878 tons of direct GHG emissions from the Facility—and therefore the strategies are not "acceptable" or "approvable" mitigation measures "where such project is located."[139]

As stated above, the CLCPA requires parties to mitigate emissions with a goal to effectively zero out their GHG emissions. And under the CLCPA, mitigation measures cannot include carbon offsets in the electric generation sector.[140] Yet, the Applicant's mitigation plans consist solely of a small solar array on site and the purchase of offsets. None of the mitigation proposals put forward by Greenidge come even close to offsetting the projected GHG emissions from the project, nor mitigating its overall effect of making it harder for the state to achieve a zero-emissions electricity sector. If DEC were to reach this step of the analysis, DEC should conclude there is insufficient mitigation. And as described more fully in Section F below, in no event can DEC issue a Title V permit conditioned on Greenidge developing mitigation measures to be submitted and evaluated after permit issuance.

i. The Installation of a Small Solar Array by Greenidge Cannot Mitigate the Burning of Fossil Fuels at the Power Plant that Will Emit Up to 641,878 Tons of GHGs Per Year.

The inclusion of a small solar array as a mitigation tactic is insufficient. A nominal amount of solar-powered energy is not nearly enough to sufficiently offset or reduce the Facility's 106 MW of nameplate capacity and GHG emissions of up to 641,878 tons per year

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[138] *Digital Assets: Greenidge Gen, Once a Coal Plant, Is Now a Profitable Crypto Miner*, DailyAlts (Aug. 19, 2020) https://dailyalts.com/digital-assets-greenidge-gen-once-a-coal-plant-is-now-a-profitable-crypto-miner/.

[139] CLCPA § 7(2).

[140] N.Y. E.C.L. § 75-0109(4)(f).

(and up to 1,127,061 tons of GHGs per year if upstream emissions are included). Also, it is unclear whether the Applicant will reduce its fossil-fueled generation by any solar-powered generation—or rather just generate more electricity via its solar panels to mine even more Bitcoin, rather than decrease operations at the Facility accordingly.

The Applicant also does not propose any other mitigation measures that sufficiently mitigate or reduce the Facility's GHG emissions from its material change in operations to mine proof-of-work cryptocurrency. Even with the most stringent mitigation measures currently available, the company would be unable to reduce the plant's GHG emissions to zero before 2040 and this failure will make it more difficult for the state to meet its 2030 target.

ii. Purchasing Offsets Is Not a Permissible Mitigation Measure Under the CLCPA.

The CLCPA mandates that New York obtain 70% of its power from renewable energy resources by 2030 and a zero-emissions electricity sector by 2040.[141] Across all sectors, the CLCPA limits greenhouse gas emissions to 60% of 1990 levels by 2030 and 15% of 1990 emissions by 2050.[142] In specific sectors, offsets are permitted under the statute to aid in reaching the goals of the CLCPA.[143] However, the CLCPA specifically states that the electricity generation sector may not use offsets to mitigate their greenhouse gas emissions: "sources in the electric generation sector *shall not be eligible to participate in such mechanism*."[144] The Applicant's purchase of carbon offsets as a potential mitigation measure for its 641,878 tons per year of CO2e are statutorily prohibited.

As the table on page 4 shows, the only time the Facility was truly carbon neutral under the statutory definition, was during the years 2011 through 2016, when it had zero emissions because it was not operating. Though an offset or net-zero approach may be used to achieve the final 15% of emissions reductions under the CLCPA's sector-wide 2050 greenhouse gas limit, the CLCPA electric sector limits afford no such flexibility.[145]

G. The CLCPA Prohibits DEC from Approving the Draft Title V Permit Prior to the Submission of the Company's Mitigation Plan.

The draft permit contains a condition requiring the Applicant to submit a GHG mitigation plan outlining a "strategy or strategies for reducing the greenhouse gas emissions generated by and associated with the Facility's operations" within 120 days of the issuance of the permit.[146] This proposal is unlawful because it would circumvent the requirements of

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[141] N.Y. Pub. Serv. L. § 66-p(2).

[142] N.Y. E.C.L. §§ 75-0107(1).

[143] N.Y. E.C.L § 75-0109(4)(f)-(i).

[144] N.Y. E.C.L § 75-0109(4)(f) (emphasis added).

[145] *Compare* CLCPA § 1(4) & CLCPA § 2, codified at N.Y. E.C.L. § 75-0107(1) (sector-wide GHG emission limit requires reducing emissions by 85% of 1990 levels & eliminating net emissions by 2050), *with* CLCPA § 4, codified at N.Y. P.S.L. § 66-p(2) (electric sector must be zero emissions by 2040).

[146] Draft Title V Permit at 6.

CLCPA Section 7(2), which clearly provide that DEC must consider an applicant's proposed mitigation measures before the permit is issued. As discussed above, pursuant to CLCPA Section 7(2), DEC cannot issue the Title V permit unless and until it determines that the Facility is consistent with and would not interfere with the attainment of the state's GHG limits. If inconsistency with the CLCPA is found,[147] the Applicant must provide a detailed statement of justification *and identify* "greenhouse gas mitigation measures to be required where such project is located."[148]

DEC's own guidance confirms this, stating that the agency's CLCPA analysis "should be included in the project description portion of the DEC permit" and that a "similar discussion," including an analysis of possible mitigation measures, "should be included in the basis for monitoring section of the permit review report (PRR) for Title V facilities."[149] The DEC's own Division of Air Resources Technical Guidance Memo makes it clear that DEC must have "a description of any proposed mitigation measures from the facility owner or operator" in hand before the Department determines CLCPA consistency, not 120 days afterwards. The Technical Guidance Memo also states that "[i]f additional mitigation measures are proposed by the applicant, they should be discussed" in the Project Description portion of the permit.[150] The Facility's current draft permit includes no discussion of mitigation measures.

The Technical Guidance Memo's requirement that DEC obtain the proposed mitigation measures before and during permit review dovetails with DEC's Uniform Procedures, which contemplate that an applicant may have to supplement a complete application "in order to enable the department to make the findings and determinations required by law," but specify that these supplements must be made "during the course of review," not after the permit is already issued.[151] Separating review of the mitigation plan from review of the remainder of the permit application also frustrates the Legislature's intent that "to the maximum extent feasible, a comprehensive project review approach shall replace separate and individual permit application reviews."[152]

Deferring review of the mitigation plan also denies the public the opportunity to read and comment on the plan, and the public hearing on this issue cannot possibly be meaningful if the public does not even know what additional measures, if any, the Applicant may propose. And as described above, carbon offsets and a small solar array do not eliminate the hundreds of

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[147] According to DEC's public notice of Greenidge's application, "There are substantial greenhouse gas (GHG) emissions which are currently associated with the existing and proposed uses at the Facility. Based on the information currently available, at this time, Applicant has not demonstrated sufficient compliance with the requirements of the Climate Act." DEC, *Notice of Complete Application, Availability of Draft Permits and Announcement of Virtual Legislative Public Comment Hearings* (Sept. 8, 2021), https://www.dec.ny.gov/enb/20210908_not8.html.

[148] CLCPA § 7(2).

[149] DEC, *DAR Technical Guidance Memo: Climate Leadership and Community Protection Act (CLCPA) and Permit Applications* at 2 (Sept. 1, 2020), https://climate.law.columbia.edu/sites/default/files/content/CLCPA%20Permit%20Applications%20TGM.pdf..

[150] *Id.* at 2.

[151] N.Y. E.C.L. § 70-0105(2) (emphasis added).

[152] N.Y. E.C.L. § 70-0103(5).

thousands of tons of GHGs being emitted at the power plant today and in the coming years, absent denial of the permit.

DEC's proposed deferred review of the mitigation plan would deprive the public of the fundamental opportunity to inform DEC's determination as to the sufficiency of any measures to mitigate the Facility's GHG emissions, effectively shielding these measures from public scrutiny and comment. New York courts have vacated permits when agencies frustrated public participation by delaying or deferring review of substantive and significant issues.[153] Thus, DEC cannot grant a Title V permit until after the company submits its complete mitigation plan to the agency, the public has a customary opportunity to comment, and DEC determines that they satisfy Section 7(2) of the CLCPA.

H. Alternatives to Significant Increases in GHG Emissions from the Facility's Change in Operations to Mine Proof-of-Work Cryptocurrency Exist.

If an agency finds that a project is necessary despite its inconsistency with CLCPA emissions reductions mandates and has provided a detailed statement of justification (none of which can be met here), it must also "identify alternatives or greenhouse gas mitigation measures to be required where such project is located."[154] Under Section 7(2), DEC is required to look at system-wide alternatives. As stated below in Section II(I), upstate New York functions on nearly 88% zero-emissions energy generation.

i. No Proof-of-Work Cryptocurrency Mining Is an Alternative.

The Facility does not have to mine proof-of-work cryptocurrency. As described above, the Facility's applications to reactivate said nothing about mining proof-of-work cryptocurrency, only about providing energy to the grid. The Facility could continue its service to the grid, as it previously represented to authorities that it would, and not generate additional hundreds of thousands of GHG emissions each year from mining Bitcoin.

ii. There Are Many Less Energy-Intensive Methods of Cryptocurrency Mining as Alternatives.

The Facility does not have to mine cryptocurrency using its current, hugely energy intensive proof-of-work method. Indeed, "Bitcoin uses more electricity per transaction than any other method [of cryptocurrency mining] known to mankind."[155] Several countries have

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[153] *See, e.g.*, *Penfield Panorama Area Cmty. v. Town of Penfield Planning Bd.*, 253 A.D.2d 342, 349 (4th Dep't 1999) (upholding trial court's annulment of a Planning Board project approval because the Planning Board deferred review of a required remediation plan until after the approval, finding that "deferring resolution of the remediation was improper because it shields the remediation plan from public scrutiny"); *Cty. of Orange v. Vill. of Kiryas Joel*, 44 A.D.3d 765, 768 (2d Dep't 2007) (holding that agency decisions must be vacated as "arbitrary and irrational" where the agency "improperly defers or delays a full and complete consideration of relevant areas of environmental concern").

[154] CLCPA § 7(2).

[155] Andrew Ross Sorkin et al., *Why Bill Gates Is Worried About Bitcoin*, N.Y. Times (Mar. 9, 2021), https://www.nytimes.com/2021/03/09/business/dealbook/bill-gates-bitcoin.html.

already taken action due to the significant GHG emissions increases in the face of climate change. For example, China, Canada, and the EU have either banned or placed strict restrictions on proof-of-work cryptocurrency mining in order to avert the harmful energy intensity and GHG emissions that it generates. [156] China has banned cryptocurrency mining altogether, while Canada is transitioning to $143/ton carbon tax to approximate the implicit subsidy of carbon-based energy. Currently, EU lawmakers are seeking to establish amendments to address cryptocurrency's GHG consumption in the Markets in Crypto-Assets (MiCA) regulation.[157]

Many less energy intensive methods exist to mine cryptocurrency, a more well-known, one being the proof-of-stake mechanism. Numerous proof-of-stake cryptocurrencies exist, including Polygon, Tezos, Polkadot, EOS, and Cardano, the latter of which has the fourth-largest market capitalization—$50 billion—as of Spring 2021.[158] In addition, Ethereum, the world's second- largest cryptocurrency, recently announced plans to switch from proof-of-work to proof-of-stake, which will use at least 99.95% less energy, or be approximately 2,000 times more energy efficient.[159] Ethereum and other proof-of-stake forms of cryptocurrency mining show that there are viable and profitable alternatives to significant increases in GHG emissions.

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[156] *See, e.g.,* Andrew Ross Sorkin, *Bitcoin's Climate Problem*, N.Y. Times (Mar. 9, 2021), https://www.nytimes.com/2021/03/09/business/dealbook/Bitcoin-climate-change.html; Shangrong Jiang et al., *Policy Assessments for the Carbon Emission Flows and Sustainability of Bitcoin Blockchain Operation in China*, 12 Nature Commc'ns 1938 (Apr. 6, 2021), https://www.nature.com/articles/s41467-021-22256-3; Maxine Joselow, , *National Carbon Tax Upheld by Canada's Supreme Court*, Sci. Am. (Mar. 29, 2021), https://www.scientificamerican.com/article/national-carbon-tax-upheld-by-canadas-supreme-court/; *EU Emissions Trading System (EU ETS*), European Commission, https://ec.europa.eu/clima/eu-action/eu-emissions-trading-system-eu-ets_en (EU and Canada's $60/ton carbon tax).

[157] Bjarke Smith-Meyer, *How to Green Cryptocurrencies*, Politico (July 30, 2021), https://www.politico.eu/article/cryptocurrency-Bitcoin-environment-impact-carbon-footprint/; Sandali Handagama, *The View from Brussels: How the EU Plans to Regulate Crypto*, NASDAQ (Oct. 20, 2021) https://www.nasdaq.com/articles/the-view-from-brussels%3A-how-the-eu-plans-to-regulate-crypto-2021-10-20. *See also* Sebastian Kettlely, *EU Wide Ban On 'Harmful' Bitcoin Mining 'Great Step' Towards Saving Environment*, Daily Express (Nov. 12, 2021), https://www.express.co.uk/news/science/1520537/eu-news-bitcoin-mining-ban-climate-change-cryptocurrency-greenhouse-emissions-bitcoin-co2 (Swedish regulators advocating for tougher regulations on Bitcoin mining have stated ". . . it is now possible to drive a mid-sized electric car some 1.1 million miles (1.8 million km) on the amount of energy it takes to mine a single bitcoin—the equivalent of completing 44 laps around the planet." Not only is this "not a reasonable use of our renewable energy" but also that " policy measures are required to address the harms caused by the proof-of-work mining method.").

[158] Ezra Kaplan, *Cryptocurrency Goes Green: Could 'Proof of Stake' Offer a Solution to Energy Concerns?*, NBC News (May 25, 2021), https://www.nbcnews.com/tech/tech-news/cryptocurrency-goes-green-proof-stake-offer-solution-energy-concerns-rcna1030.

[159] *See, e.g., Ethereum Energy Consumption Index*, Digiconomist, https://digiconomist.net/ethereum-energy-consumption/.

There is also the proof-of-authority method, a modified form of proof-of-stake, which has also emerged as a less energy-intensive method to mine cryptocurrency.[160] Another less energy intensive consensus mechanism is Open Representative Voting, which is a "consensus mechanism unique to Nano which involves accounts delegating their balance as voting weight to Representatives."[161] The Open Representative Voting method eliminates the unnecessary expenditure of energy—using only 0.0000072% of the power it takes for a single Bitcoin transaction.[162]

And there are many more less energy-intensive mining methods—including Federated Consensus, proof-elapsed-time, proof-of-capacity, proof-of-activity and proof-of-burn, all of which do not require extra energy use to ensure transactional security.[163] There is no shortage of ways to engage in energy-efficient cryptocurrency mining that do not require the repowering of mothballed or low-capacity power plants across the state.

iii. The Applicant Could Utilize Only Zero-Emissions Renewable Energy to Mine Proof-of-Work Cryptocurrency.

The Applicant made the conscious decision to burn natural gas, rather than use zero-emissions renewable energy. Examples abound of renewable energy-powered cryptocurrency. For example, hydro-powered plants mine Bitcoin in Mechanicville and Massena, New York.[164] A new cryptocurrency was recently created, Candela, whose protocol requires solely solar-powered mining.[165]

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[160] *See, e.g.*, Zulhilmi Zainudin, *Proof of Work vs., Proof of Stake vs. Proof of Authority Consensus in 2 Minutes*, YouTube (Oct. 27, 2018), https://www.youtube.com/watch?v=0RmgcGFKoGM; Joachim Lohse, *The Proof of Authority Algorithm in the Energy Market*, AmpControl (Oct. 13, 2019), https://www.ampcontrol.io/post/the-proof-of-authority-algorithm-in-the-energy-market; Christine Comben, *How Does the Proof of Authority Algorithm Work?*, Coin Rivet (June 4, 2019), https://coinrivet.com/how-does-the-proof-of-authority-algorithm-work/.

[161] Nano, *Protocol Design*, https://docs.nano.org/protocol-design/orv-consensus/; *Glossary*, Nano Documentation, https://docs.nano.org/glossary/#open-representative-voting-orv.

[162] *See* Hiranmayi Srinivasan, *How Cryptocurrency Impacts the Environment-and Some Sustainable Choices to Make Instead*, Real Simple (June 8, 2021), https://www.realsimple.com/work-life/money/money-planning/how-cryptocurrency-uses-energy (stating that Bitcoin uses 1,546 kWh of energy per transaction, compared to Nano at 0.000112 kWh per transaction).

[163] *See* Peter W. Eklund & Roman Beck, *Factors That Impact Blockchain Scalability*, Proceedings of the 11th Int'l Conference on Mgmt. of Digital Ecosystems, 126 (2019), https://doi.org/10.1145/3297662.3365818; Y. Li et al., *A Blockchain-Based Decentralized Federated Learning Framework with Committee Consensus*, IEEE Network 35(1) at 234-241 (Jan./Feb. 2021), https://ieeexplore.ieee.org/abstract/document/9293091.

[164] Kathleen Moore, *Mechanicville Hydro Plant Gets New Life*, Albany Times Union (July 7, 2021) https://www.timesunion.com/news/article/Mechanicville-hydro-plant-gets-new-life-16299115.php; Coinmint, *Inside the Massive Crypto-Mining Plant in Massena, NY*, YouTube (Feb. 13, 2019), https://www.youtube.com/watch?v=qa90X3pkAQ8.

[165] Candela Coin, Press Release, *Blockchain Startup Candela Coin Develops Solar Powered Eco-Friendly Cryptocurrency Mining Protocol* (June 4, 2021), https://www.prnewswire.com/news-releases/blockchain-startup-candela-coin-develops-solar-powered-eco-friendly-cryptocurrency-mining-protocol-301305861.html.

However, as stated above, if the renewable energy generated to mine proof-of-work cryptocurrency diverted sufficient renewable energy from serving to the grid, such operations still would not be compliant with the CLCPA.

iv. DEC Should Disregard All Discussion of a Possible Switch to Hydrogen Fuel Because Greenidge Has Not Demonstrated That Conversion to an Alternative Fuel Is Technically or Economically Feasible at the Site, or that Hydrogen Fuel Combustion Would Result in Zero Emissions, as Required by the CLCPA.

In their Supplemental Addition to the Title V Permit, Greenidge brings forth potential mitigation alternatives, most notably an emissions reduction project opportunity to combust hydrogen along with fracked gas. Greenidge claims that combusting hydrogen has the potential to mitigate 10 to 15% of their CO2 emissions.[166] Greenidge must elaborate substantially on this claim in order for it to be considered as a mitigation measure under the CLCPA. And 10-15% of 641,878 tons of CO2 emissions will make little to no impact, while instead hydrogen combustion increased localized co-pollutant emissions and other air quality impacts due to increased nitrogen oxides ("NOx") emissions.

Many other questions remain unanswered. If Greenidge would produce the hydrogen itself, where would they site the electrolyzers—and where is the source of the renewable energy needed to run them? If Greenidge is not planning to produce its own hydrogen, then where would its hydrogen come from? Greenidge does not identify a green hydrogen producer (existing or proposed) capable of supplying their site. Would the pipeline servicing the power plant carry hydrogen? Current fossil fuel pipelines are limited in their ability to carry meaningful volumes of hydrogen, as hydrogen's molecular size and low density make it incompatible with generic pipeline materials and designs.[167] Furthermore, hydrogen tends to corrode and embrittle pipeline infrastructure.[168] This corrosive tendency, together with the need for higher pipeline pressure and the risks of leakage, could create serious safety issues.[169] The leaks from hydrogen transport would likely go unnoticed as gas pipelines do not currently

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[166] ERM Letter to DEC at 9.

[167] *See* U.S. Dep't of Energy, *Hydrogen Pipelines*, https://www.energy.gov/eere/fuelcells/hydrogen-pipelines; *see also* Christopher Findlay, *What's Your Purpose? Reusing Gas Infrastructure For Hydrogen Transportation*, Siemens Energy (Sept. 11, 2020) ("If the share of hydrogen exceeds 40 percent, the compressors [on a methane gas pipeline] will need to be replaced."), https://www.siemensenergy.com/global/en/news/magazine/2020/repurposingnatural-gas-infrastructure-for-hydrogen.html.

[168] Justin Mikulka, *Decoding the Hype Behind the Natural Gas Industry's Hydrogen Push*, Desmog Blog (Jan. 14, 2021), https://www.desmogblog.com/2021/01/14/decoding-hype-behind-natural-gas-industry-hydrogen-push (citing Zahreddine Hafsi et al., *Hydrogen Embrittlement Of Steel Pipelines During Transients*, 13 Procedia Structural Integrity 210 (2018)).

[169] Patrick K.A. Verdonck & Martha Kammoun, *Is Hydrogen a Viable Alternative to Lithium Under the Current Energy Storage Regulatory Framework?*, 18 Oil, Gas & Energy Law Intelligence (Nov. 2020), https://bracewell.com/insights/hydrogen-viable-alternative-lithium-under-current-energy-storage-regulatory-framework.

have systems for detecting leaks of hydrogen, itself a greenhouse gas that is five times more potent than CO2.[170]

DEC should reject this unsubstantiated and *de minimis* mitigation method, as Greenidge has not provided enough information as to how they will obtain their green hydrogen or how they will burn it. Further, Greenidge has not made a showing that burning hydrogen would even be CLCPA-compliant.

a. Burning Green Hydrogen Is Infeasible Due to Limited Supply and High Costs.

Globally, less than 1% of hydrogen is produced via electrolysis and only about 0.02% qualifies as green hydrogen (meaning that it is produced from electrolysis powered purely by renewable electricity).[171] Within the United States, nearly all hydrogen is produced via steam methane reformation ("SMR") of fossil gas, an energy-intensive process emitting both GHGs and harmful co-pollutants such as NOx, fine particulate matter, carbon monoxide, and volatile organic compounds.[172] And because electrolysis is so energy-intensive, hydrogen produced using grid-average electricity is even more carbon-intensive than hydrogen produced via SMR.[173] Green hydrogen production is currently limited to demonstration projects, with projects "mostly in the single-digit MW scale."[174]

The diversion of New York's currently limited supply of wind and solar energy towards the energy-intensive production of green hydrogen for use at Greenidge to mine proof-of-work cryptocurrency would divert those resources from the actual needs of the grid and the people of New York, making it even harder to meet the CLCPA's mandates. For example:

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[170] Richard Derwent et al., *Global Environmental Impacts of the Hydrogen Economy*, 1 Int'l J. Nuclear Hydrogen Production & Application 64 (2006), https://www.inderscience.com/info/inarticle.php?artid=9869; *see also* Erin M. Blanton et al., Columbia Ctr. on Glob. Energy Pol'y, *Investing in the U.S. Natural Gas Pipeline System to Support Net-Zero Targets* at 39 (Apr. 2021), https://www.energypolicy.columbia.edu/sites/default/files/file-uploads/GasPipelines_CGEP_Report_081721.pdf.

[171] Sasan Saadat & Sara Gersen, Earthjustice, *Reclaiming Hydrogen for a Renewable Future: Distinguishing Oil & Gas Industry Spin from Zero-Emission Solutions* at 7 (Aug. 2021) ("Reclaiming Hydrogen"), https://earthjustice.org/sites/default/files/files/hydrogen_earthjustice.pdf; Emanuele Taibi et al., Int'l Renewable Energy Agency, *Green Hydrogen Cost Reduction: Scaling up Electrolysers to Meet the 1.5°C Climate Goal* at 18 (Dec. 2020), https://irena.org/-/media/Files/IRENA/Agency/Publication/2020/Dec/IRENA_Green_hydrogen_cost_2020.pdf; *see also* Int'l Energy Agency, *Decarbonising Industry With Green Hydrogen* (Nov. 17, 2020), https://www.iea.org/articles/decarbonising-industry-with-green-hydrogen (defining "'green' hydrogen" as hydrogen produced "using electricity generated from renewable energy sources").

[172] *Reclaiming Hydrogen* at 10.

[173] *Id.* at 13.

[174] *Green Hydrogen Cost Reduction: Scaling up Electrolysers to Meet the 1.5°C Climate Goal* at 18.

> "Meeting the global demand for green hydrogen that one industry group predicts in 2050 could require the build out of solar resources that cover more than 81,250 square miles. This is a land area larger than the state of Minnesota. Using green hydrogen in segments that can use direct electricity would exacerbate the challenge of deploying sufficient renewable resources by wasting renewable capacity on energy-intensive electrolysis."[175]

This is especially true as demand for New York's limited renewable energy supply will grow as electrification becomes more widespread throughout the state and as the agencies work to meet the requirement for zero-emissions electricity by 2040.[176]

Hydrogen—and especially green hydrogen—is also prohibitively expensive. Market estimates for green hydrogen costs are between $2.50–$4.50/kg.[177] In addition, green hydrogen costs are intertwined with cost of the clean electricity that powers its production. Low-cost green hydrogen requires abundant, low-cost renewable energy.[178] Before claiming to use and facilitate green hydrogen on site, the Applicant could directly use renewable energy generation to mine cryptocurrency beyond the proposed 5MW of solar generation it may or may not develop.

b. Hydrogen Combustion is Not Zero-Emissions.

Finally, even assuming that Greenidge can establish a bona fide plan for operating its proposed plant on green hydrogen and commit to that plan—such operation would still not render the proposed plant consistent with the CLCPA because hydrogen combustion is not zero-emissions (as required for operation post-2040). Combusting even pure hydrogen results in GHG emissions, particularly when the hydrogen leaks, as it is prone to do given its small

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[175] *Reclaiming Hydrogen* at 17 (citation omitted).

[176] Julie McNamara, *What's the Role of Hydrogen in the Clean Energy Transition?*, Union of Concerned Scientists (Dec. 9, 2020) (citing M.W. Melaina et al., NREL, *Blending Hydrogen into Natural Gas Pipeline Networks: A Review of Key Issues* (Mar. 2013), https://www.nrel.gov/docs/fy13osti/51995.pdf), https://blog.ucsusa.org/julie-mcnamara/whats-the-role-of-hydrogen-in-the-clean-energy-transition; *see also* E3, *Pathways to Deep Decarbonization in New York State* at 6 (June 24, 2020), https://climate.ny.gov/-/media/Project/Climate/Files/2020-06-24-NYS-Decarbonization-Pathways-Report.ashx (describing increased electricity demand as building and transportation electrification expands); DEC's Cryptocurrency Testimony at 2, stating ("Places like New York and Washington State, with robust hydroelectric power, offer attractive energy pricing and the cryptocurrency mining industry has taken advantage of that. Concerns arise about using so much of that public power for private benefit when so many other longstanding industries need to electrify over such a short period of time.").

[177] BloombergNEF, *Hydrogen Economy Outlook: Key Messages* at 3 (Mar. 30, 2020), https://data.bloomberglp.com/professional/sites/24/BNEF-Hydrogen-Economy-Outlook-Key-Messages-30-Mar-2020.pdf; Nat'l Renewable Energy Lab., *The Technical and Economic Potential of the H2@Scale Concept within the United States* at 7 (2020) ("NREL 2020, Technical and Economic Potential of H2@Scale"), https://www.nrel.gov/docs/fy21osti/77610.pdf.

[178] Lazard, *Levelized Cost Of Energy, Levelized Cost Of Storage, and Levelized Cost Of Hydrogen* (Oct. 2021), https://www.lazard.com/perspective/levelized-cost-of-energy-levelized-cost-of-storage-and-levelized-cost-of-hydrogen/.

molecule size.[179] As described above, hydrogen itself is an indirect GHG with a global warming potential of 5.8 over 100 years.[180] More problematically, hydrogen combustion generates NOx emissions, a harmful air pollutant and another indirect GHG[181] that in turn contributes to the formation of ozone, particulate matter, and acid rain.[182] In fact, combusting hydrogen may produce NOx emissions at six times the rate of combusting methane.[183] NOx emissions could be mitigated through "advances in pollution control technology or by lowering flame temperatures, but this would then require either lower volumes of hydrogen in the combustor (and consequently, increased reliance on fossil fuels) or de-rating the engine, which results in efficiency losses and power decreases."[184]

NOx emissions leading to ozone formation is a major health concern for New Yorkers. For example, the state's Department of Health has identified the reduction of air pollution including ozone as a key indicator to drive improvements in asthma rates and public health outcomes throughout the state. The New York State Prevention Agenda 2019-24 notes the "extensive evidence" linking ozone with respiratory and cardiovascular illness and death and establishes a goal to "[r]educe exposure to outdoor air pollutants," with an emphasis on vulnerable groups.[185]

The Applicant claims that the Facility would utilize green hydrogen to mitigate about 10-15% of its GHG emissions. That means the Applicant would still combust at least 85% fossil gas. And even if they were able to successfully fuel the Facility with green hydrogen, it would still emit GHGs due to the likely leakage of hydrogen as well as the formation of NOx (which in turns leads to the formation of ground-level ozone) during combustion. Hydrogen combustion therefore is not, and cannot be, zero-emissions within the meaning of the CLCPA and as required for operation post-2040.

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[179] *Best Practices Overview: Hydrogen Leaks*, Hydrogen Tools, https://h2tools.org/bestpractices/hydrogen-leaks; Justin Mikulka, *Decoding the Hype Behind the Natural Gas Industry's Hydrogen Push*, Desmog Blog (Jan. 14, 2021), https://www.desmogblog.com/2021/01/14/decoding-hype-behind-natural-gas-industry-hydrogen-push (citing M. W. Melaina et al., NREL, *Blending Hydrogen into Natural Gas Pipeline Networks: A Review of Key Issues* (Mar. 2013)).

[180] *See, e.g.*, Richard Derwent et al., *Global Environmental Impacts of the Hydrogen Economy*, 1 Int'l J. Nuclear Hydrogen Production & Application 64 (2006), https://www.inderscience.com/info/inarticle.php?artid=9869.

[181] Gerhard Lammel & Hartmut Grasl, *Greenhouse Effect of NOx*, 2 Env't Sci. Pollution Rsch. Inst. 40 (July 1995), https://pubmed.ncbi.nlm.nih.gov/24234471/.

[182] EPA, *Basic Information about NO2* (last updated June 2, 2021), https://www.epa.gov/no2-pollution/basic-information-about-no2#Effects.

[183] Lew Milford et al., Clean Energy Grp., *Hydrogen Hype in the Air* (Dec. 14, 2020), https://www.cleanegroup.org/hydrogen-hype-in-the-air/ ("The bad news is that H2 combustion can produce dangerously high levels of nitrogen oxide (NOx). Two European studies have found that burning hydrogen-enriched natural gas in an industrial setting can lead to NOx emissions up to ***six times that of methane*** (the most common element in natural gas mixes). There are numerous other studies in the scientific literature about the difficulties of controlling NOx emissions from H2 combustion in various industrial applications. Even the Trump Administration's Department of Energy 'Hydrogen Program Plan' identifies H2 combustion as a significant problem.") (emphasis in original).

[184] *Reclaiming Hydrogen* at 18.

[185] N.Y. Dep't of Health, *N.Y. State Health Improvement Plan: Prevention Agenda 2019–2024* at 72-73 (Sept. 2, 2021), https://www.health.ny.gov/prevention/prevention_agenda/2019-2024/docs/ship/nys_pa.pdf.

In summary, the Applicant's incomplete, speculative, and non-committal assertions that its proposed plant could someday run on a hydrogen blend cannot be considered as a possible basis for finding the project CLCPA-consistent. *Cf.* CLCPA § 2 (codified at N.Y. E.C.L. § 75-0109(3)(b)) (greenhouse gas reduction measures must be "real, permanent, quantifiable, verifiable, and enforceable"). Running on hydrogen would necessitate major design and operational changes. And even if Greenidge *had* a concrete proposal for such operation, it would still not suffice to render the project CLCPA-consistent because hydrogen is not zero-emissions within the meaning of the CLCPA and as required for operation post-2040.

I. The Facility Has Not Established That It Is Necessary, and Viable Alternatives in the Region Suggest It Is Not.

The Applicant claims that the Facility is being used to provide reliable and adequate service to the grid. There is no need for additional capacity generation near the power plant, nor is Greenidge providing a "clean" source of power to the grid as they claim—it is burning fossil fuels 24 hours a day, not including the emissions from its upstream operations. Zone C already has high renewable energy for grid service, and additional emissions-free resources are increasingly coming online to meet both near-term and long-term locational reliability needs already exist.

i. Existing and Near-Term Development of Renewable Energy Can and Will Continue to Serve the Local Load and Can Meet Demand Needs Without the Facility.

Today, nearly 88% of the energy generated in upstate New York is sourced from zero-emissions generation.[186] This includes 1,049 GWh of wind power and 414.1 GWh of hydropower annually for Zone C,[187] and 1,036.8 MW and 216.8 MW of hydro capability during both summer and winter peak demand.[188] More is coming online every day. Zone C is expected to see three new wind generating stations—the Canisteo Wind Farm, the Baron Winds, and the Prattsburgh Wind Farm—that provide a total of 1,352.2 MW of additional renewable capacity.[189] Zone C is also expected to increase solar generation, with an additional 221 MW in 2021, 717 MW by 2030, and another 830 MW by 2040.[190] In 2020, Yates County

[186] NYISO, *The New York ISO & Grid Reliability* at 13 (Feb. 2021), https://www.nyiso.com/documents/20142/2224547/The-New-York-ISO-and-Grid-Reliability.pdf/1c5987ea-81f5-9db9-615c-16f8201192a7.

[187] NYISO, *Gold Book* at 102 (Apr. 2021), https://www.nyiso.com/documents/20142/2226333/2021-Gold-Book-Final-Public.pdf. Zone C's Canastota Windpower, Marsh Hill Wind Farm, High Sheldon Wind Farm, Orangeville Wind Farm, Wethersfield Wind Power, and Fenner Wind Power generated a total of 923 GWh of net energy in 2020.

[188] *Id.* at 100-01 adding the total combined capacity of Summer and Winter capabilities of wind and hydro for Zone C.

[189] *Id.* at 112-15. The Canisteo Wind Farm is set to have a summer and winter MW capacity of 581.4, Baron at 476.8 MW, and Prattsburgh at 294 MW.

[190] *Id.* at 41.

approved several landfills to be turned into solar farms to add an additional 37 MW capacity for the area.[191]

In total, there are twenty-four proposed renewable resources additions for Zone C, ranging from solar, wind and energy storage initiatives, set to bring in, approximately, an additional 2,355 MW of zero-emissions capacity.[192] The significant prospects for solar and other forms of renewable generation in the area demonstrate that there is no need for a fossil gas power plant here.

ii. Recent Transmission and Distribution Infrastructure Improvements in Zone C Can Also Meet Demand Needs Without the Facility.

In addition, recent transmission and distribution improvements within Zone C were implemented to ensure reliability and resiliency of the grid in Zone C.[193] The Clay-DeWitt and Clay-Teall Rebuild Projects established a 115kV electric transmission line to strengthen the grid within Zone C.[194] Terminal upgrades for two of the Clay-Pannell 345kV transmission lines completed in 2019 have increased the ratings for these lines.[195]

iii. Battery Storage Will Expand Over the Coming Years and Can Meet Demand Needs Without the Facility.

The ability of battery storage technologies to meet reliability needs in the short term and long term exist, are increasing, and have the potential to mitigate any possible need for the Facility to serve the grid.

Combining current battery technology with renewables can efficiently meet peak demand.[196] The National Renewable Energy Laboratory has found "significant potential for energy storage to replace peaking capacity," emphasizing that the peaking capacity of renewables plus storage "grows as a function of [solar photovoltaics] PV deployment."[197] As the penetration of solar increases within a region, battery storage becomes increasingly effective at bridging capacity shortfalls. The trend toward narrower capacity gaps becomes

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[191] The Chronicle, *Old Landfills To Become New Solar Farms (*May 30, 2020) https://www.chronicle-express.com/news/20200530/old-landfills-to-become-new-solar-farms.

[192] NYISO, *Gold Book* at 112-15.

[193] *See* NYISO, *W. N.Y. Public Policy Transmission Planning Report (*Oct. 2017), https://www.nyiso.com/documents/20142/2892590/Western-New-York-Public-Policy-Transmission-Planning-Report.pdf.

[194] "National Grid identifies in their local transmission plan [17] a project to reconductor the Clay-Dewitt (#3) 115 and Clay-Teall (#10) 115 kV transmission lines late 2017." NYISO, *2014 Intermediate Area Transmission Review of the N.Y. State Bulk Power Transmission System* at 27 (Apr. 2, 2015), https://www.nysrc.org/pdf/MeetingMaterial/RCMSMeetingMaterial/RCMS_Agenda_183/2014_NYISO_IntermediateATR_Draft_v12.pdf.

[195] NYISO, *2020 Reliability Needs Assessment* at 13; FERC, *Managing Transmission Line Ratings* at 4 (Aug. 2019), https://www.ferc.gov/sites/default/files/2020-05/tran-line-ratings.pdf.

[196] *See* Nat'l Renewable Energy Lab. ("NREL"), NREL/TP-6A20-74184, *The Potential for Battery Energy Storage to Provide Peaking Capacity in the United States* (2019), https://www.nrel.gov/docs/fy19osti/74184.pdf.

[197] *Id.* at 15.

even more pronounced when solar and wind are combined, as the resources complement each other by typically peaking at different times of day. Significant amounts of battery storage have been approved throughout the state[198] and battery storage installations will expand over the next decade. The CLCPA requires 3,000 MW of statewide energy storage to be installed by 2030, and specifically calls for the state to direct that storage be prioritized to replace fossil-fuel peaker plants.[199]

Long-duration storage technologies are projected to be increasingly available and cost effective in the long term as well. There are already alternative, zero-emissions resources being piloted that can provide several days of power. The highest profile example of this is a rechargeable iron-air battery developed by Form Energy, which states that it will be able to provide 100 hours of capacity at one tenth the cost of lithium-ion batteries.[200] The U.S. Department of Energy has also committed to a Long Duration Storage Shot tasked with reducing the cost of long-duration energy storage by 90% within the decade.[201] Furthermore, lithium-ion battery prices are expected to continue decreasing, making longer-duration applications even more economically feasible for existing commercially available storage technologies.[202] Existing and future battery storage, with the abundant renewable energy in Zone C will mitigate any possible need for the Facility to serve the grid.

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[198] *See* Andy Colthorpe, *Approval for 100MW / 400MWh Battery Storage Project at Site of New York Fossil Fuel Plant*, Energy Storage News (July 16, 2021), https://www.energy-storage.news/approval-for-100mw-400mwh-battery-storage-project-at-site-of-new-york-fossil-fuel-plant/; Parry, *State approves plan for Astoria clean energy hub at old Poletti power plant site*, QNS (July 16, 2021), https://qns.com/2021/07/state-approves-plan-for-astoria-clean-energy-hub-at-old-poletti-power-plant-site/; T&D World, *Con Edison to Build New York State's Biggest Battery Storage System in Queens* (Dec. 18, 2020), https://www.tdworld.com/distributed-energy-resources/energy-storage/article/21150750/con-edison-to-build-new-york-states-biggest-battery-storage-system-in-queens. *See Con Edison & O&R Utilities Seeking Battery Projects to Aid Clean Energy Push*, ConEdison (Aug. 2, 2021), https://www.coned.com/en/about-us/media-center/news/20210802/con-edison-and-oru-utilities-seeking--battery-projects-to-aid-clean-energy-push; David Wagman, *RFP Alert: Con Edison and Orange & Rockland are Looking for Battery Energy Storage Capacity*, PV Magazine (Aug. 2, 2021), https://pv-magazine-usa.com/2021/08/02/rfp-alert-con-edison-and-orange-rockland-are-looking-for-battery-energy-storage-capacity/; Dave Kovaleski, *Con Edison of New York Issues RFP for Installation of Battery Storage Systems*, Daily Energy Insider (Aug. 2021), https://dailyenergyinsider.com/news/31400-con-edison-of-new-york-issues-rfp-for-installation-of-battery-storage-systems/?amp. *See* Press Release, N.Y. Power Auth. ("NYPA"), *NYPA Announces North Country Large-Scale Energy Storage Project Construction Start* (Aug. 26, 2020), https://www.nypa.gov/news/press-releases/2020/20200826-northcountry; Andy Colthorpe, *Publicly-Owned and Operated 20MW Battery Project Begins Construction in New York*, Energy Storage News (Aug. 28, 2020), https://www.energy-storage.news/publicly-owned-and-operated-20mw-battery-project-begins-construction-in-new-york/.

[199] NYSERDA, *Energy Storage*, https://www.nyserda.ny.gov/All-Programs/Energy-Storage. *See also* N.Y. P.S.L. § 66-p(5); (7)(a).

[200] *See* Form Energy, Inc., *Form Energy Unveils Chemistry of Multi-day Storage Battery Technology* (July 22, 2021), https://www.prnewswire.com/news-releases/form-energy-unveils-chemistry-of-multi-day-storage-battery-technology-301339075.html.

[201] *See* Dep't of Energy, Office of Energy Efficiency & Renewable Energy, *Long Duration Storage Shot* (Sept. 23, 2021), https://www.energy.gov/eere/long-duration-storage-shot.

[202] *See* Andy Colthorpe, *US National Renewable Energy Lab Forecasts Rapid Cost Reduction for Battery Storage to 2030*, Energy Storage News (July 14, 2021), https://www.energy-storage.news/us-national-renewable-energy-lab-forecasts-rapid-cost-reduction-for-battery-storage-to-2030/.

III. THE FACILITY'S AIR PERMITS MUST BE DENIED BECAUSE THE SEQRA REVIEW WAS BASED ON ENTIRELY DIFFERENT CIRCUMSTANCES.

DEC mischaracterizes the issuance of air permits to the Applicant as a Type II action under New York State's Environmental Quality Review Act ("SEQRA"). For all the reasons discussed above and below, the material changes in operations at the Facility require that the Title V air permit decision be treated as Type I action and the issuance of the air permits must be denied because the current circumstances have never been subject to a full environmental review under SEQRA. In the meantime, DEC should require the Facility to cease operations until a full SEQRA review is lawfully completed.

A. The Requirements and Purposes of SEQRA.

SEQRA ensures that protection and enhancement of the environment, including human and community resources, receive appropriate weight with social and economic considerations in determining public policy. In enacting SEQRA, the State Legislature intended that state and local governments "conduct their affairs with an awareness that they are stewards of the air, water, land, and living resources, and that they have an obligation to protect the environment for the use and enjoyment of this and all future generations."[203]

Although SEQRA was patterned after its Federal counterpart, the National Environmental Policy Act ("NEPA"),[204] the State Legislature wished to provide greater protection to the environment, and therefore, made significant changes from NEPA, requiring that environmental impact statements be prepared in a much broader category of actions, and imposing substantive duties on the deciding governmental body to assure that environmental consequences are avoided or mitigated.[205] As many courts have noted, the heart of SEQRA lies in its provision regarding environmental impact statements ("EISs").[206]

For purposes of SEQRA, "actions" include "projects or physical activities, such as construction or other activities that may affect the environment by changing the use, appearance or condition of any natural resource or structure, that . . . require one or more new or modified approvals from an agency or agencies."[207]

The decision-making body having primary responsibility for carrying out or approving a project or activity, termed the "lead agency," in this case DEC, is charged with the responsibility of determining whether the project under consideration *may* have significant

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[203] 6 NYCRR § 617.1(b); DEC, *Assessing Energy Use and Greenhouse Gas Emissions in Environmental Impact Statements*, DEC Policy at 1-2 (issued July 15, 2009), https://www.dec.ny.gov/docs/administration_pdf/eisghgpolicy.pdf.

[204] 42 U.S.C. § 4332 *et seq*.

[205] *See City of Buffalo v. N.Y. State Dep't of Envt'l Conserv.*, 184 Misc.2d 243 (Sup. Ct. Erie County 2000).

[206] *See, e.g., Jackson v. N.Y. State Urban Dev. Corp.*, 67 N.Y.2d 400 (1986); *Town of Henrietta v. N.Y. State Dep't of Envt'l Conserv.*, 76 A.D.2d 215 (4th Dep't 1980).

[207] 6 NYCRR § 617.2(b)(1).

adverse environmental effects. [208] An EIS must be prepared if a proposed action "*may* include the potential for at least one significant adverse environmental impact."[209]

Conversely, and most importantly here, to determine that an EIS will not be required for an action, "the lead agency must determine either that there will be no adverse environmental impacts or the identified adverse environmental impacts will not be significant."[210]

In determining whether an EIS needs to be prepared, the SEQRA regulations provide a detailed road map concerning the obligations of the lead agency. The lead agency must first determine whether or not the proposed action falls within the categories of "Type I," "Unlisted," or "Type II." Type I actions are those actions that because of their size, scope or type, are determined to be more likely to have adverse environmental consequences, and therefore require the drafting of an EIS. As explained in the SEQRA regulations:

> "The purpose of the list of type I actions in this section is to identify, for agencies, project sponsors and the public, those actions and projects that are more likely to require the preparation of an EIS than unlisted actions. . . . [T]he fact that an action or project has been listed as a Type I action carries with it the presumption that it is likely to have a significant adverse impact on the environment and may require an EIS."[211]

In contrast, Type II actions do not require environmental review under SEQRA. To be classified as a Type II action, an action must involve "no more than minor social, economic or environmental effects" and "no more than minor alteration of, or adverse effect upon, any property, protected area, or natural or man-made resource of national, State or local significance, including but not limited to . . . prime or unique agricultural land; . . . water resources, including lakes, reservoirs, rivers, streams."[212] Actions listed in Section 617.5(c) of the SEQRA regulations have already been determined not to have an adverse effect on the environment. Case law suggests that "[t]he criteria for what constitutes a Type II action cannot be considered in a vacuum . . . consideration should have been given to environmental concerns associated with the proposed action."[213] Because DEC has not conducted a SEQRA

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[208] N.Y. E.C.L. § 8-0109(2).

[209] 6 NYCRR § 617.7(a)(1).

[210] 6 NYCRR § 617.7(a)(2).

[211] 6 NYCRR § 617.4(a).

[212] 17 NYCRR § 15.14(d)(3), (7).

[213] *Town of Bedford v. White*, 204 A.D.2d 557, 559 (2d Dep't 1994); *see also generally, Omni Partners, L.P. v. Cty. of Nassau,* 237 A.D.2d 440, 442 (2d Dep't 1997) (the court stating the state did not conclude a proper review because the projects "include a potential effect on air quality, traffic conditions, water use, sewage, and drainage. Thus, the Planning Commission should have issued a positive declaration and required the preparation of an EIS."); *London v. Art Comm'n of City of N.Y.*, 190 A.D.2d 557, 559 (1st Dep't 1993) (stating "In view of the fact that SEQRA entrusts some initial classifications of Type II actions to agencies, it is imperative this trust not be taken lightly and that the reason for the classification be documented.").

review of the new operations at the Facility, reissuance of the Greenidge air permits must be denied.

Finally, unlisted actions are those actions that are neither Type I nor Type II.[214] An environmental impact statement must be prepared for an unlisted action if the proposed action "may include the potential for at least one significant adverse environmental impact."[215]

B. The Issuance of This Air Permit Must Be Categorized as a Type I Action Under SEQRA Because Operations Onsite Have Changed Substantially and Will Have Significant Adverse Environmental Effects—Locally, Statewide and Beyond.

Section 617.4(a)(1) of the SEQRA regulations identifies as Type I actions "those actions that an agency determines may have a significant adverse impact on the environment and require the preparation of an EIS."[216] The criteria for determining whether an action has a significant adverse impact on the environment are set forth in Section 617.7(c)(1). These criteria include:

> "(i) a substantial adverse change in existing air quality, ground or surface water quality or quantity, traffic or noise levels; . . .
> (ii) the removal or destruction of large quantities of vegetation or fauna; substantial interference with the movement of any resident or migratory fish or wildlife species; . . .
> (vi) a major change in the use of either the quantity or type of energy;
> (vii) the creation of a hazard to human health . . . ."[217]

[214] 6 NYCRR § 617.2(ak).

[215] 6 NYCRR § 617.7(a)(1).

[216] 6 NYCRR § 617.4(a)(1).

[217] 6 NYCRR § 617.7(c)(1).

The application of these standards to climate change impacts is addressed in DEC's policy referenced above:

> "Global climate change is one of the most important environmental challenges of our time. There is scientific consensus that human activity is increasing the concentration of GHGs in the atmosphere and that this, in turn, is leading to serious climate change. These climate changes will continue to affect the environment and natural resources of the State of New York. . . . SEQR requires that lead agencies identify and assess actions for potential adverse environmental impacts. As state and local governments strive to meet this SEQR obligation, they will identify proposed projects that have potentially significant environmental impacts due, in part, to energy use and GHG emissions.[218]

In 2018, DEC revised the SEQRA regulations to add that an EIS must discuss "measures to avoid or reduce both an action's impacts on climate change and associated impacts due to the effects of climate change such as sea level rise and flooding." … "where relevant and significant." [219] Under these standards, a substantial change in operations at an electric generating facility will have a significant adverse impacts, including but not limited to stark increases air and hot water emissions.

In contrast, to determine that an EIS will not be required for an action, "the lead agency must determine either that there will be no adverse environmental impacts or that the identified adverse environmental impacts will not be significant."[220] To make such a determination for the change in operations at the Greenidge Facility would be arbitrary and capricious.

As Senator Schumer noted in his letter to the EPA regarding this Facility, "The EPA and NYSDEC regulate such plants to keep these negative impacts on our health and the environment to a minimum, while maximizing the public good. The Applicant's new business model raises serious concerns because as emissions rise, the public good remains the same."[221] DEC is required, with such a significant change in operations at the Facility and such a significant increase in emissions, to take a hard look at the impacts of the Facility under SEQRA.

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[218] DEC, *Assessing Energy Use and Greenhouse Gas Emissions in Environmental Impact Statements*, DEC Policy at 1-2 (July 15, 2009), https://www.dec.ny.gov/docs/administration_pdf/eisghgpolicy.pdf.

[219] 6 NYCRR § 617.9(b)(5)(iii)(i).

[220] 6 NYCRR § 617.7(a)(2).

[221] Sen. Charles E. Schumer, Press Release, *Schumer Calls on EPA to Review Air Permit For Greenidge Power Plant Cryptocurrency Mining Facility* (Oct. 12, 2021), https://www.schumer.senate.gov/newsroom/press-releases/citing-environmental-concerns-schumer-calls-on-epa-to-review-air-permit-for-greenidge-power-plant-cryptocurrency-mining-facility-senator-reveals-emisions-from-plant-have-recently-increased-tenfold-and-with-ownership-planning-to-expand-virtual-mining-operation-pollution-from-mining-will-only-increase.

DEC is also required to make a reasoned elaboration of the basis for its determination.[222] In the Environmental Notice Bulletin for the draft Permit, DEC simply writes: "Project is not subject to SEQR because it is a Type II action," with no elaboration beyond that one sentence.[223]

This lack of reasoned elaboration is in stark contrast to DEC's recent public statement that:

> "DEC is closely monitoring the operations of Greenidge Generation, **a Bitcoin mining operation in Torrey, New York, and current proposals for its expansion.** In addition to ensuring continued compliance with DEC's current permits for the facility, DEC will ensure a comprehensive and transparent review of its proposed air permit renewals with a particular focus on the potential climate change impacts and consistency with the nation-leading emissions limits established in the Climate Leadership and Community Protection Act. **As the greenhouse gas emissions associated with this type of facility may be precedential and have broader implications beyond New York's borders**, DEC will consult with the U.S. EPA, the Climate Action Council, and others as we thoroughly evaluate the complex issues involved."[224]

It is also in contrast to the Commissioner's recent statement that "Greenidge has not shown compliance with NY's climate law."[225]

DEC mischaracterizes the issuance of new air permits as a Type II action under SEQRA. Although certain types of permit renewals are categorized as Type II actions in the SEQRA regulations, this categorization only applies "where there will be *no material change in* permit conditions or *the scope of permitted activities*."[226] Here, the scope of the plant's permitted activities has materially changed since its air permits were issued in 2016. As such, material changes in the permit conditions are necessary to comply with the requirements of the CLCPA. In these circumstances, the issuance of the Applicant's air permits must be treated as Type I action and subject to a full environmental review under SEQRA.

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[222] *Zutt v. State*, 99 A.D.3d 85 (2d Dep't 2012); *Gernatt Asphalt Prod., Inc. v. Town of Sardinia*, 664 N.E.2d 1226 (N.Y. 1996).

[223] DEC, *ENB Region 8 Completed Applications 09/08/2021* (Sept. 9, 2021), https://www.dec.ny.gov/enb/20210908_reg8.html#Greenidge_Generation_LLC%20/2.

[224] DEC, *Statement from the New York State Department of Environmental Conservation on Greenidge Generation* (Apr. 17, 2021), https://www.dec.ny.gov/press/122827.html (emphasis added).

[225] DEC, Commissioner Basil Seggos, @BasilSeggos, Twitter, (Sept. 8, 2021), https://twitter.com/basilseggos/status/1435724739352449025.

[226] 6 NYCRR § 617.5(c)(32) (emphasis added).

C. Significant Air Emissions Impacts from Proof-of-Work Cryptocurrency Mining Are Not Justified, and Require a Full Type I SEQRA Review.

The Facility's air impacts are not justified.[227] The description of the Applicant's new operations in the Form S-1 Registration Statement filed by Greenidge with the Securities and Exchange Commission shows how operations at Greenidge have completely changed since 2016 when the existing permits were issued.[228] The Form S-1 states that:

> "Our approximately 106 megawatt ("MW") natural gas power generation facility powered approximately 41 MW of Bitcoin mining capacity as of July 31, 2021. . . . Additionally, between August 1 and September 15, 2021, we placed [an order] for an additional 11,500 S19j Pro Bitmain Antminers. . . . With the full deployment of these new miners, our total fleet is expected . . . to utilize approximately 95 MW of electricity."[229]

DEC gave no consideration to the possibility of Bitcoin mining in its Amended Negative Declaration covering the 2016 air permits issued on June 28, 2016. The Facility operates with a completely different business model than the model described in the Amended Negative Declaration. Specifically, in assessing the "Impact on Energy" of reactivating the Greenidge Facility, DEC declared:

> "[T]he re-activation of . . . the plant itself **will not create a new demand for energy.** Rather, it will serve as another facility to help meet the current electricity demands of the region. As a result, the plant will have no significant adverse impacts in increasing the use of energy."[230]

(emphasis added.) This rationale for deciding not to require the Applicant to undertake a more thorough investigation into the proposed facility's environmental impacts and ways to mitigate them was invalidated by the Applicant's decision to convert its facility to a Bitcoin mining operation. In direct conflict with DEC's finding that the Facility would "not create a new

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[227] *See generally*, NBS News, *Some Locals Say a Bitcoin mining operation is ruining one of the Finger Lakes. Here's How* (July 5, 2021), https://www.nbcnews.com/science/environment/some-locals-say-Bitcoin-mining-operation-ruining-one-finger-lakes-n1272938; Grist, *This power plant stopped burning fossil fuels. Then Bitcoin came along*. (May 6, 2021), https://grist.org/technology/Bitcoin-greenidge-seneca-lake-cryptocurrency/; Spectrum News, *Gillibrand calls on EPA to help decide if Greenidge Generation can keep running on shore of Seneca Lake*, (Sept. 9, 2021), https://spectrumlocalnews.com/nys/rochester/news/2021/09/09/finger-lakes--greenidge-generation-comes-under-fire; Treichler Law Office, *Water Use Issues at Greenidge Generating Station*, https://treichlerlawoffice.com/water/greenidge/index.html.

[228] Greenidge Generation Holdings Inc., Sec. & Exch. Comm'n, *Form S-1 Registration Statement* (Oct. 5, 2021), https://sec.report/Document/0001193125-21-291578/.

[229] *Id*. at 1, 80.

[230] SEQRA Part 3, Full Environmental Assessment Form Evaluation of the Magnitude and Importance of Project Impacts and Determination of Significance, DEC Application #8-5736-00004/00001m /00016, and /00017 at 3 (June 28, 2016); Scott E. Sheeley, DEC Regional Permit Administrator, State Environmental Quality Review Act, *Transmittal of Amended SEQRA Negative Declaration* (June 28, 2016).

demand for energy," the project now utilizes a significant amount of the electricity that it generates for proof-of-work cryptocurrency mining.

The 95 MW of usage projected in the Company's Form S-1 is 333 times the maximum usage anticipated by DEC in 2016. The maximum energy DEC assumed would be used by Greenidge in 2016 is shown in the Environmental Assessment Form, Part 2 prepared by DEC as a basis for the 2016 Amended Negative Declaration.[231] The 2016 Environmental Assessment Form, Part 2 states that the proposed action will not utilize more than 2,500 MWh per year of electricity.[232] In comparison, the Facility's current projected usage of 95 MW per hour equates to 832,200 MWh per year.

Perhaps as a result of DEC's assumption that the Facility would only operate intermittently after it was repowered and would only use a small fraction of its generating capacity, appropriate scrutiny was not applied to a number of potential impacts of restarting the Facility in making its 2016 SEQRA review. These failures are demonstrated in the 2016 Amended Negative Declaration and include the failure to adequately assess potential climate change and GHG emission impacts as described above, the failure to adequately assess potential impacts on natural resources in Seneca Lake and local aquifers, and the failure to adequately assess potential negative impacts on community character, including noise impacts.

D. The Significant Changes in Operations at the Facility Significantly and Adversely Impact Nearby Water Sources, Which Are Not Justified, and Require a Full Type I SEQRA Review.

The Applicant is permitted to discharge 134 million gallons of water daily into Seneca Lake at temperatures of *up to 108 degrees Fahrenheit*.[233] This thermal pollution endangers the Kueka outlet and the Seneca Lake—impacting health and wildlife habitability, including but not limited to migration and loss of biodiversity, oxygen depletion, direct thermal shock, and changes in dissolved oxygen.[234]

Under their water permit, the Applicant is required to incorporate fisheries protection measures and ensure that they "annually reduce the impingement mortality of all life stages of fish by at least 95 percent."[235] The Applicant's study plan began in April 2017 and concluded in October 2019. In November 2020, the Applicant submitted their technology installation & operation plan. Over four years has passed since the Applicant was granted that limited study period, yet protections have not been implemented. The direct and indirect harms to aquatic

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[231] SEQRA Part 2, *Full Environmental Assessment Form Identification of Potential Project Impacts*, DEC Application #8-5736-00004/00001m /00016, and /00017 (June 28, 2016).

[232] *Id.* at 8.

[233] Greenidge, *Water Withdrawal*, DEC Permit No. 8-5736-00004/00015.

[234] Renee Cho, *Bitcoin's Impacts on Climate and the Environment*, Columbia Climate School: State of the Planet (Sep. 20, 2021), https://news.climate.columbia.edu/2021/09/20/Bitcoins-impacts-on-climate-and-the-environment/; *See also generally*, Gail T. Shiomoto and Betty H. Olson, *Thermal Pollution Impact Upon Aquatic Life*, 41, 3 J. of Env. Health, 132-39 (1978), http://www.jstor.org/stable/44547838.

[235] ASA Analysis & Commc'n, Inc., *Greenidge Generating Facility Technology Installation & Operation Plan* at 1-2, (Nov. 2020).

life throughout this period is significant and yet another reason the plant's significant changes in operations are not justified.

Although the 2016 Amended Negative Declaration stated that the Applicant's SPDES permit needed to be renewed and a water withdrawal permit issued,[236] the Facility began operations in the spring of 2017 without DEC having renewed the SPDES permit or DEC having issued a water withdrawal permit. These permits were not issued until September 2017, months after the Facility began operations. The 2016 Amended Negative Declaration states that:

> "The Department also proposes to renew and modify the facility's existing SPDES permit to incorporate requirements to install cylindrical wedge wire intake screens on the plant's cooling water intakes and install variable speed cooling water pumps on Unit 4 as "Best Technology Available" to address requirements under the federal Clean Water Act to reduce fish mortality (i.e., impingement and entrainment)."[237]

However, when DEC issued a renewed SPDES permit in September 2017, DEC gave a lengthy period for the Applicant to come into compliance with the Clean Water Act requirements. There is no specific date provided in the permit for when technology to prevent fish impingement and entrainment must be installed at the Facility.

DEC's Biological Fact Sheet on the Cooling Water Intake Structure for the Facility, confirms that the plant's "*cooling water intake structure lacks any fish protection technology, therefore the facility does not meet either the requirements of 6 NYCRR § 704.5 nor the requirements of the CWA § 316(b) Phase II Rule (40 CFR Parts 122 and 125)*."[238] To date, no cylindrical wedge wire intake screens have been installed on the plant's cooling water intake pipe and the Facility has confirmed that the variable speed cooling water pumps it has installed are always run at full capacity. The reason why cylindrical wedge wire intake screens have not yet been installed on the plant's cooling water intake pipe and the variable speed cooling water

[236] A water withdrawal permit was required pursuant to the Water Resources Protection Act of 2011, Environmental Conservation Law, Article 15. Title 15 which was enacted after Greenidge became inactive in 2011. Despite objections from local environmental groups, DEC treated Greenidge as an existing plant and not as a new facility for purposes of applying the water withdrawal permitting requirements. Because DEC decided to treat Greenidge as an existing facility, DEC claimed that it did not need to make the environmental impact assessments required by the water withdrawal permitting law, and DEC did not make those assessments.

[237] Scott E. Sheeley, DEC Regional Permit Administrator, State Environmental Quality Review Act, *Transmittal of Amended SEQR Negative Declaration* at 15 (June 28, 2016).

[238] William C. Nieder, DEC, *Biological Fact Sheet on the Cooling Water Intake Structure for Greenidge Station* at 2 (March, 17 2017), https://treichlerlawoffice.com/water/greenidge/2017-9-7%20Biological%20Fact%20Sheet%20-%20Cooling%20Water%20Intake%20Structure.pdf (emphasis added).

pumps are always run at full capacity is indicated by the studies done by AES in 2006-2007, and reported in 2010.[239] These studies point out that:

> "The Unit 4 intake, alternatively, is atypical in that it relies on suction to convey water from the lake, through the elevated intake pipe, and on to the circulating water pumps. This configuration does not allow for any type of componentry, including traveling screens, that would interrupt the suction upstream of the circulating water pumps. A result of this configuration is that fish (potentially including eggs, larvae, juveniles, and adults) that enter the Unit 4 cooling water intake are ultimately entrained through the facility."[240]

[239] Henningson, Durham & Richardson Architecture & Engineering, P.C. & HDR Engineering, Inc., *AES Greenidge Generation Station 2006-2007 Finfish Community and Waterbody Studies* at 2 (Apr. 29, 2010), https://treichlerlawoffice.com/water/greenidge/finfishstudy2006_2007_2010.pdf. This study constitutes Appendix III to the *AES Greenidge Generating Station Impingement and Entrainment Characterization Study*, prepared by Henningson, Durham & Richardson, April 29, 2010 (I&E Study), https://treichlerlawoffice.com/water/greenidge/2010%20Greenidge%20I&E%20study.pdf, *see generally* page 3.

[240] Henningson, Durham & Richardson Architecture & Engineering, P.C. & HDR Engineering, Inc., *AES Greenidge Generation Station AES Greenidge Generating Station Impingement and Entrainment Characterization Study* at 2-3 (Apr. 29, 2010), https://treichlerlawoffice.com/water/greenidge/2010%20Greenidge%20I&E%20study.pdf.

The following diagram of the depth of the shallow bay in which the Greenidge intake pipe is located illustrates the problem Greenidge faces in trying to install "any type of componentry" to reduce fish impingement and entrainment and still maintain suction sufficient to draw water though intake pipe.[241]

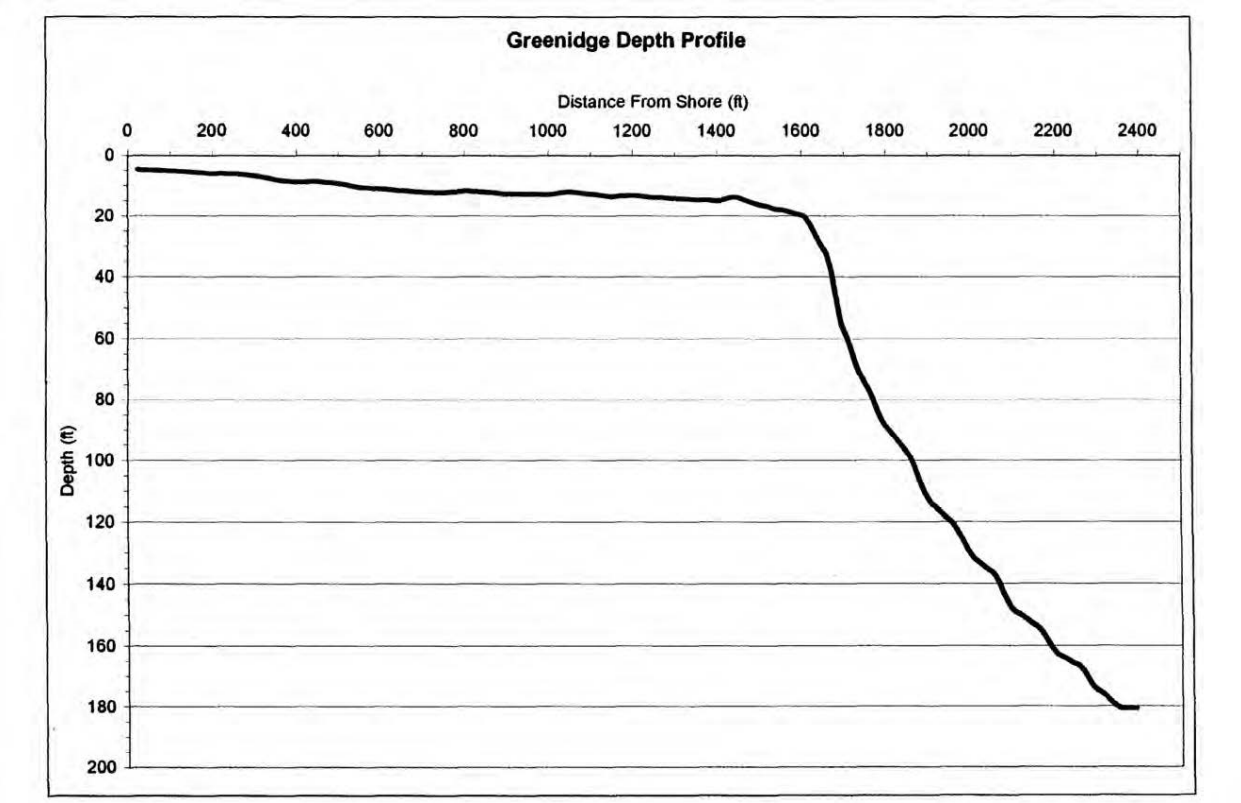

Figure 37 - Depth Profile for Seneca Lake in the Vicinity of AES Greenidge Generating Station Based on 2007 Sampling

[241] *Id.* at 3.

Without any components installed, it is difficult to measure fish impingement and entrainment, but, considering that the water withdrawal permit issued to the Facility is one of the largest water withdrawal permits issued in New York State and is significantly larger than all the other water withdrawal permits issued on Seneca Lake combined, [242] and that the Facility is now operating 24/7, fish impingement and entrainment is likely to be massive and far beyond what was contemplated when DEC envisioned that the Facility would operate only a few days a year. This analysis has never been done, and needs to be completed under SEQRA before any permits are issued.

E. The Significant Changes in Operations at the Facility Significantly and Adversely Impact Nearby Community Character and Have Tremendous Noise Impacts, Which Are Not Justified, and Require a Full Type I SEQRA Review.

No consideration at all was given in the 2016 Amended Negative Declaration to potential community character and noise impacts. The 2016 Environmental Assessment Form, Part 2 incorrectly states that the proposed action will not result in an increase in noise.[243] Yet when the electrical contractor tried to install computers into cargo containers placed outside the Facility in 2020, it was discovered that the noise from operating the computers outside the Facility would far exceed permitted decibel levels.[244] The computers were then installed inside the plant. Now that the Applicant has squeezed as many computers as possible inside the plant,[245] they are again planning to build outside the Facility in order to expand. The site plan application approved by the Town of Torrey shows that Greenidge is planning to build four buildings on the grounds outside the generating station and construction recently started.[246]

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[242] DEC does not provide lists of water withdrawal permits, but provides information on individual water withdrawal permits in its permit application database, https://www.dec.ny.gov/cfmx/extapps/envapps/index.cfm. Water Withdrawal Annual Reports are shown on the DEC info Locator at https://gisservices.dec.ny.gov/gis/dil/ .

[243] SEQRA, *Full Environmental Assessment Form, Part 2 – Identification of Potential Project Impacts at 8 (June 28, 2016).*

[244] Maloney, *Bitcoin Mining Helps Boost a Growing Data Center Market*, Engineering News-Record (Nov. 18, 2020), https://www.enr.com/articles/50762-Bitcoin-mining-helps-boost-a-growing-data-center-market. ("The original plan was to install mining rigs in customized cargo containers outside the generating plant, but after three units were installed, the owners realized the noise far exceeded permitted decibel levels. Instead, the O'Connell team would need to fit all the needed gear inside the existing footprint of the power plant . . . .").

[245] Photographs showing how computers have been squeezed throughout the old generating station are posted in the article cited in note 38. See also video tour of the Greenidge plant, Committee to Preserve the Finger Lakes, Facebook (reposted Mar. 5, 2021, original post Feb. 28, 2021), https://www.facebook.com/groups/ctpfl/permalink/5226704354038759/.

[246] Dale Irwin, *Town of Torrey: Site Plan Review—Permit Application* (June 30, 2020), https://preservethefingerlakes.org/pfl/wp-content/uploads/2020/10/2020-6-30-Site-plan-review-Permit-application-3.pdf.

The noise impacts from proof-of-work cryptocurrency mining are well-documented.[247] And as described in the Form S-1, the Applicant plans to install thousands of additional computers into these buildings.[248] This is likely to result in substantial increases in noise that may exceed permitted decibel or nuisance levels. The noise impacts at the Facility need to be examined and they were not examined before the air permits were issued.

F. Safety Issues Should Be Examined Due to the Significant Changes in Operations at the Facility.

The potential fire and safety impacts from proof-of-work cryptocurrency mining at the Facility should be examined further.[249] These potential impacts were not examined before the air permits were issued.

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In these circumstances, air permits must be denied because DEC's Type II determination is incorrect and no SEQRA review has been conducted of the current material change in operations at the Facility. For all the reasons above, the material physical changes and changes in operations at the Facility must be reviewed under SEQRA. Because they have not, the permits must be denied.

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[247] *See, e.g.*, Jeff Keeling, *Professor: Bitcoin mining's model brings not just noise, but environmental cost that's under scrutiny*, WJHL (May 18, 2021), https://www.wjhl.com/news/local/professor-Bitcoin-minings-model-brings-not-just-noise-but-environmental-cost-thats-under-scrutiny/; Robert Houk, *Officials Press Bitcoin Company To Find A Solution To Noise Issues*, Johnson City Press (Aug. 23, 2021), https://www.johnsoncitypress.com/news/officials-press-Bitcoin-company-to-find-a-solution-to-noise-issues/article_78e62c44-0434-11ec-af1c-bf43ccb2b545.html; Andy Koen, *Noise Complaint Over Crypto Mining Business Led City To Buy New Equipment* , KOAA News, KOAA News (July 26, 2019), https://www.koaa.com/news/covering-colorado/noise-complaint-over-crypto-mining-business-led-city-to-buy-new-equipment; Andy Fox, *What's That Noise? One Of World's Largest Bitcoin Facilities Is Too Loud, VB Neighbors Say*, Wavy (Aug. 15, 2018), https://www.wavy.com/news/whats-that-noise-one-of-worlds-largest-Bitcoin-facilities-is-too-loud-vb-neighbors-say/; The Local, *Norway Council may shut down noisy Bitcoin miner* (Aug. 21 2018) https://www.thelocal.no/20180821/norway-council-may-shut-down-noisy-Bitcoin-miner/.

[248] Greenidge Generation Holdings Inc., Sec. & Exch. Comm'n, *Form S-1 Registration Statement* at 104 (Oct. 5, 2021), https://sec.report/Document/0001193125-21-291578/.

[249] *See*, *e.g.*, Nerman Hajdarbegovic, *Fire Destroys Thai Bitcoin Mining Facility*, CoinDesk (Nov. 16, 2014), https://www.coindesk.com/markets/2014/11/06/gallery-fire-destroys-thai-bitcoin-mining-facility/; Sarah Coble, *OVH Data-Center Fire Impacts Cyber-Criminals* (Mar. 15, 2021), https://www.infosecurity-magazine.com/news/ovh-data-center-fire-impacts/; Richard Hartley-Parkinson, *Bitcoin Mining Believed to Be Behind Huge Fire in Block of Flats*, Metro (Feb. 9, 2018), https://metro.co.uk/2018/02/09/bitcoin-mining-believed-behind-huge-fire-block-flats-7298294/; Anthony Cuthbertson, *Bitcoin Mining Mega Farm Burns Down in China, Destroying $10M of Cryptocurrency Machines*, Independent (Oct. 1, 2019), https://www.independent.co.uk/life-style/gadgets-and-tech/news/bitcoin-mining-farm-china-fire-cryptocurrency-innosilicon-a9128246.html. *See also* Sarah DeWeerdt, *Cryptocurrency Mining Harms Human Health as Surely as Traditional Mining* (Nov. 26, 2019), https://www.anthropocenemagazine.org/2019/11/the-increasing-toll-of-cryptocurrency-mining-on-climate-and-human-lives/.

G. The Additional 120-Day Review Period for Any Purposed Mitigation Plan Is Unlawful and Defeats Informed Public Review and Comment Procedures.

Finally, in its draft Title V permit DEC suggests that the Applicant can provide a mitigation plan within 120 days of the issuance of that permit. As stated in Section II(B) above, the CLCPA mandates state agencies, *when reviewing permits*, to consider whether the agency decision is "inconsistent with or will interfere with the attainment of the statewide greenhouse gas emissions limits established in [the CLCPA]." DEC cannot ensure that the Applicant's mitigation practices are consistent with the CLCPA if they review the proposed solutions after the permit has been granted.

In addition to this 120-day period being non-compliant with the express terms of the CLCPA, it also violates SEQRA, which requires all environmental impacts to be explored and documented for a fulsome review. Allowing material information to come in 120 days after a permit is issued is an impermissible action by DEC.

IV. SUBSTANTIVE AND SIGNIFICANT ISSUES HAVE BEEN RAISED THAT MERIT AN ADJUDICATORY HEARING.

For all the reasons described above, DEC should deny the Title V permit. If the agency is not ready to deny the permit at this stage, the agency must refer this matter for an adjudicatory hearing because "comments received from members of the public or other interested parties raise substantive and significant issues relating to the application, and resolution of any such issue may result in denial of the permit application, or the imposition of significant conditions thereon."[250]

[250] 6 NYCRR § 621.8(b).

DEC itself has stated:

> "As part of DEC's aggressive oversight of this facility and their compliance with our stringent regulatory requirements, DEC is closely monitoring the operations of Greenidge Generation, a bitcoin mining operation in Torrey, New York, and current proposals for its expansion. In addition to ensuring continued compliance with DEC's current permits for the facility, **DEC will ensure a comprehensive and transparent review of its proposed air permit renewals with a particular focus on the potential climate change impacts and consistency with the nation-leading emissions limits established in the Climate Leadership and Community Protection Act. As the greenhouse gas emissions associated with this type of facility may be precedential** and have broader implications beyond New York's borders, DEC will consult with the U.S. EPA, the Climate Action Council, and others as we thoroughly evaluate the complex issues involved."[251]

As mentioned earlier, both Senator Gillibrand and Senator Schumer, as well as numerous state legislators, have sent letters concerning the substantive and significant environmental impacts from the material change in operations at the Facility that require full assessment.

The strong opposition raised by the public at the public hearings on the Draft Title V permit on September 13, 2021, also raise substantive and significant issues. These comments elaborate on those issues, *i.e.,* the Facility's inconsistency with the CLCPA, the failure of the company to justify the project in light of those inconsistencies, the infeasibility and inadequacy of the alternatives and mitigation measures proposed by the Applicant, as well as important questions about the Facility's compliance with the Clean Air Act, and the fact that Facility has never undergone a full SEQRA review, all of which are important questions of law and fact.

The resolution of any one of these issues "may result in denial of the permit application, or the imposition of significant conditions thereon,"[252] and the commenters have above "explain[ed] the basis of [their] opposition and identif[ied] the specific grounds which could lead the department to deny or impose significant conditions on the permit."[253] As such, the agency is obligated to make a referral so long as comments have raised issues that "*may* result" in the denial or modification of the permit, or if comments have simply raised "sufficient doubt about the applicant's ability to meet statutory or regulatory criteria applicable to the project, such that a reasonable person would require further inquiry."[254] The permit

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[251] DEC, *Statement from the New York State Department of Environmental Conservation on Greenidge Generation* (Apr. 17, 2021), https://www.dec.ny.gov/press/122827.html (emphasis added).

[252] 6 NYCRR § 621.8(b); *see also id.* § 624.4(c)(3).

[253] *Id.* § 621.8(d).

[254] *Id.* § 624.4(c)(2).

should be denied in the interim period so that current operation, construction, and expansion at the Facility ceases.

CONCLUSION

These comments are neutral as to the cryptocurrency industry and to blockchain technology innovation.[255] These comments are focused solely on the harmful impacts from large, fossil-fueled energy generation systems that mine proof-of-work cryptocurrency 24 hours a day, 365 days a year to the detriment of the local community and the climate. The new, huge amounts of GHG emissions from the proof-of-work mining operations at the Greenidge Facility is a significant threat to the state's and nation's transition to clean energy that is urgently needed to prevent the worst impacts of climate change on our communities and local economies.

For all the foregoing reasons, DEC should (1) void the Facility's prior permit issuance, including its Clean Air Act construction approval, and require Greenidge to apply for new Clean Air Act NSR and Title V air permits as though it were yet to be constructed (2) deny the draft and Title V air permit as noncompliant with the CLCPA, and (3) require the Applicant to cease operations until it undergoes a fulsome SEQRA analysis that accounts for the substantial increase in energy demand resulting from the everyday use of the Facility for the energy-intensive purpose of mining Bitcoin rather than serving any existing limited existing local energy needs.

[255] United Nations, *7 Ways Blockchain Can Stop Climate Change & Save the Environment*, YouTube (Sept. 8, 2017), https://www.youtube.com/watch?v=58xtN6Dw8kw (discussing how blockchain can help fight climate change); United Nations, U.N. Econ. Dev., *Sustainability Solution Or Climate Calamity? The Dangers And Promise Of Cryptocurrency Technology* (June 20, 2021), https://news.un.org/en/story/2021/06/1094362; IBM, *Benefits of Blockchain*, https://www.ibm.com/topics/benefits-of-blockchain.

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