



# **GARNET ENERGY CENTER**

**Case No. 20-F-0043**

**1001.17 Exhibit 17**

**Air Emissions**

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## **Exhibit 17: Air Emissions**

This Exhibit will track the requirements of Final Stipulation 17, dated March 5, 2021, and therefore, the requirements of 16 New York Codes, Rules and Regulations (NYCRR) § 1001.17. This Exhibit contains a discussion of potential temporary impacts to ambient air quality resulting from the construction of the Garnet Energy Center (Garnet Energy Center or Project). Such impacts could occur as a result of emissions from engine exhaust, from the generation of fugitive dust during earth moving activities, and travel on unpaved roads. There will be no back-up generator installed for operation of the Project. An identification of appropriate control and mitigation measures to minimize potential adverse impacts will be provided.

### **17(a) Demonstration of Compliance with Applicable Federal, State, and Substantive Local Regulatory Requirements Regarding Air Emissions**

#### ***Federal Regulatory Requirements***

Section 111 of the Clean Air Act (CAA) authorizes the U.S. Environmental Protection Agency (EPA) to develop technology-based standards which apply to specific categories of stationary sources. These standards are referred to as New Source Performance Standards (NSPS) and are found in Title 40 of the Code of Federal Regulations (40 Code of Federal Regulations [CFR]) Part 60. The NSPS are developed and implemented by the EPA and are delegated to the states. There are approximately 100 NSPS, which apply to new, modified, and reconstructed affected facilities in specific source categories. There are no NSPS which apply to solar panels or energy storage facilities, as they do not emit air pollutants or greenhouse gases (GHGs) while in operation.

Section 112 of the CAA requires that the EPA develop and enforce regulations to protect the public from exposure to airborne contaminants that are known to be hazardous to human health and are not covered by the National Ambient Air Quality Standards (NAAQS). National Emission Standards for Hazardous Air Pollutants (NESHAP) are established to control the emissions of air toxics from sources in an industry group or source category. NESHAPs are found in 40 CFR Part 61 and 63. There are no NESHAPs which apply to solar panels or energy storage facilities.

The Acid Rain Program (ARP) was established by Title IV of the 1990 CAA Amendments. It requires major emission reductions of sulfur dioxide (SO<sub>2</sub>) and nitrogen oxides (NO<sub>x</sub>), the primary precursors of acid rain from the power sector. The SO<sub>2</sub> program sets a cap on the total amount of SO<sub>2</sub> that may be emitted by electric generating units (EGUs) in the contiguous United States.

NO<sub>x</sub> reductions under the ARP are achieved through a program that applies to certain coal-fired EGUs. The ARP will not apply to the proposed Project because it will not burn fossil fuels or emit either SO<sub>s</sub> or NO<sub>x</sub>.

### ***State Regulatory Requirements***

(i) 2015 New York State Energy Plan (SEP)

The SEP, adopted by the New York State Energy Planning Board pursuant to New York State Energy Law § 6-104 in June 2015, provides a wide range of goals for New York's energy system (Senate Bill S6599). The SEP is based on five Guiding Principles: market transformation, community engagement, private sector investment, innovation and technology, and customer value and choice. The SEP, among other things, "sets out specific initiatives to increase renewables and decrease [GHG] emissions" (SEP at 11). Its goals include attracting private investment in New York's energy sector and combating climate change. The SEP calls for reducing statewide GHG emissions 40% from 1990 levels and generating 50% of the State's electricity from renewable resources by 2030 (SEP at 112). These targets were amended in 2020 to reflect the statutory targets in the Climate Leadership and Community Protection Act of generating 70% of the State's electricity from renewables and zero carbon emission electric generation by 2020. According to the SEP, large-scale renewables have several immediate benefits for the State: "economic development and jobs for communities across the State, greater stability in customer bills, [and] cleaner air..." (SEP at 71).

(ii) Clean Energy Standard (CES)

In August 2016, the New York State Public Service Commission (NYSPSC) adopted the CES to ensure that New York will achieve the SEP's 50% by 2030 goal (NYSPSC, 2016). The chief focus of the CES initiative is on building new renewable resource power generation facilities (CES at 78) (NYSPSC 2016). The CES also sought to reduce the "total emissions of air pollutants resulting from fossil fuel combustion" (CES at 3).

The CES employs two related mechanisms to reach the SEP's renewables goal. First, it requires load-serving entities (LSEs) to obtain an increasing percentage of their electricity needs from renewables. LSEs demonstrate compliance by purchasing renewable energy credits (RECs) from renewable resources (NYSPSC, 2016). Second, to ensure that an increasing amount of RECs are available to LSEs, the CES authorizes the New York State Energy Research and

Development Authority (NYSERDA) to procure RECs from renewables to ensure an increasing number of RECs are available to LSEs (NYSPSC, 2016). Renewables sited within New York are eligible to sell RECs regardless of their location within the State (NYSPSC, 2016).

The NYSPSC's highest projection for the amount of utility-scale solar that would need to be installed to help reach the 50% renewables mandate was approximately 6,900 MW (NYSPSC, 2016). The NYSPSC noted that even if 100% of those projects were sited on New York agricultural lands, only about 0.16% of such lands would be converted to utility-scale solar (NYSPSC, 2016, Appendix G at 20).

The NYSPSC's 2016 analysis was recently updated to reflect the CLCPA's increased renewables goals (NYSPSC 2020). While the 2016 analysis assumed that solar facilities require 2 acres per MW, the 2020 analysis increased this assumption to 5 acres per MW (NYSPSC 2020 at 5-2). Nevertheless, the 2020 analysis found that increasing the State's renewables mandate from 50% to 70% by 2030 would only see approximately 0.2% to 0.5% more of New York's agricultural lands occupied by utility-scale solar facilities than the 2016 analysis's 0.16% (NYSPSC 2020 at 5-2). In other words, at most 0.66% of New York's agricultural lands would host utility-scale solar facilities to achieve the 70% by 2030 mandate. Further, the 2020 analysis concluded that, "[g]iven the minor conversion of land compared to available crop and pastureland, project-specific agency guidelines, and restoration following decommissioning, significant adverse impacts on land use and land cover would not be expected from incremental utility-scale solar development" (NYSPSC 2020 at 5-2).

(iii) New York State Climate Leadership and Community Protection Act

Recently, the New York State legislature passed the Climate Leadership and Community Protection Act (CLCPA) was passed and signed into law (Senate Bill S6599). The CLCPA increases the State's renewable energy penetration goal to 70% by 2030, with 6 gigawatts of solar generation by 2025. The CLCPA ultimately requires 100% carbon-free electricity by 2040. The Climate Act is also expected to incentivize the procurement of 6,000-MW of photovoltaic (PV) solar generation by 2025.

(iv) Title V

The New York State Department of Environmental Conservation (NYSDEC) Division of Air Resources (DAR) administers an air permitting program under New York State statutes and

regulations (most notably, 6 NYCRR Part 201) and the CAA. Prior to commencing construction, a major stationary source (i.e., facility whose potential air pollution emissions exceeds certain thresholds) must obtain a Title V Facility Permit, which contains all regulatory requirements applicable to all sources at the facility. Solar arrays generate electricity without emitting air pollutants. Therefore, the proposed Project will not require a Title V Facility Permit.

### ***Local Regulatory Requirements***

There are no applicable local regulatory requirements in the Town of Conquest or Cayuga County pertaining to air emissions.

### **17(b) Assessment of Existing Ambient Air Quality Levels and Trends**

The CAA requires that the EPA set NAAQS for pollutants considered harmful to public health and the environment. NAAQS apply to criteria pollutants [i.e., particulate matter with a diameter  $\leq 10$  microns ( $PM_{10}$ ), particulate matter with a diameter  $\leq 2.5$  microns ( $PM_{2.5}$ ), nitrogen dioxide ( $NO_2$ ),  $SO_2$ , carbon monoxide (CO), ozone ( $O_3$ ), and lead (Pb)]. Each NAAQS is expressed in terms of a pollutant concentration level and an associated averaging period.

NYSDEC DAR monitors criteria pollutant and air toxics concentrations at more than 50 sites across New York State. These sites are part of the federally-mandated National Air Monitoring Stations Network and the State and Local Air Monitoring Stations Network. Various private industrial facilities and utilities also monitor air pollution levels.

The DAR publishes an annual summary of air quality data for New York State. The most recent summary available is the New York State Air Quality Report for 202019 (NYSDEC, 202019). This report summarizes the ambient air quality levels and trends by NYSDEC region. The proposed Project would be located in NYSDEC Region 7<sup>1</sup>, which has ~~three~~four sites that monitor for the following pollutants:

- Camp Georgetown in Madison County (Site 36-053-0006), which addresses ambient air concentration data for  $SO_2$ .
- Cayuga East in Cayuga County (Site 36-109-0002), which addresses ambient air concentration data for  $SO_2$ .

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<sup>1</sup> Broome, Cayuga, Chenango, Cortland, Madison, Onondaga, Oswego, Tioga, and Tompkins Counties.

- East Syracuse in Cayuga County (Site 36-067-1015), which addresses ambient air concentration data for SO<sub>2</sub>.
- East Syracuse in Cayuga County (Site 36-067-1015), which addresses ambient air concentration data for PM<sub>2.5</sub>.
- East Syracuse in Cayuga County (Site 36-067-1015), which addresses ambient air concentration data for O<sub>3</sub>.
- Fulton/ Granby in Cayuga County (Site 36-075-0003), which addresses ambient air concentration data for O<sub>3</sub>.

The nearest monitoring sites for three other criteria pollutants including PM<sub>10</sub>, NO<sub>2</sub>, and CO are located in Monroe County listed below.

- Rochester in Monroe County (Site 36-055-1007), which addresses ambient air concentration data for PM<sub>10</sub>.
- Rochester Near-Road in Monroe County (Site 36-055-0015), which addresses ambient air concentration data for NO<sub>2</sub> and CO.

In 20~~2019~~<sup>2019</sup>, the ambient air quality data collected at each monitoring station listed above were within the acceptable levels defined by the NAAQS for the monitored pollutants (NYSDEC, 20~~2019~~<sup>2019</sup>).

No additional local air monitoring data is available to further define air quality in the immediate vicinity of the proposed Project.

#### **17(c) Emissions by Combustion Sources at the Facility**

Electricity is generated from the Project's solar arrays without fuel combustion. Therefore, a table detailing the rates and amount of emissions as specified by 16 NYCRR § 1001.17 (c) is not applicable to the Project and has not been included in this Exhibit.

#### **17(d) Assessment of the Potential Impacts to Ambient Air Quality That May Result from Pollutant Emissions from the Facility**

The solar arrays for the Project will generate electricity without releasing pollutants into the ambient air, therefore the operation of the Project would not increase air pollutant concentrations or contribute to an exceedance of the air quality standards.

**Construction Related Impacts**

Temporary, local, and minor impacts to air quality could result from the operation of construction equipment and vehicles typical of construction projects. Impacts from fugitive dust created during site preparation and travel on newly created access roads could occur. Diesel generators may be used to provide temporary electrical service to the construction trailers and during solar panel commissioning. Construction trailers would require only modest amount of electrical power for lighting, heating, cooling, computers, etc. Commissioning activities that require the use of generators typically occur for limited duration and during daylight hours. Fugitive dust and engine exhaust emissions would be at low levels and for limited durations and would not significantly impact local air quality. In addition, the Project will comply with standard Siting Board certificate conditions requiring the operation of functioning mufflers on construction vehicles. Impacts from fugitive dust emissions are anticipated to be short-term and localized and dust control measures will be deployed to minimize impacts as described in the Preliminary Stormwater Pollution Prevention Plan (SWPPP), provided as Appendix 23-3.

It is anticipated that none of these sources of temporary emissions would require an air permit or registration. The construction contractor will be instructed not to leave generators idling when they are not actively providing power. In addition, exhaust systems on equipment and construction personnel vehicles will be properly maintained. As a result, adverse impacts to air quality are not anticipated.

**Operation Related Impacts**

Operation of the Project would not generate vented or fugitive air emissions. During operation, the Project would instead displace air emissions from fossil fuel-fired power plants as provided in Table 17-1. See Exhibit 8 for the analysis required by the Article 10 regulations.

**Table 17-1. Garnet Energy Center Displaced Emissions Summary**

Year	CO <sub>2</sub> (short tons)	NO <sub>x</sub> (short tons)	SO <sub>2</sub> (short tons)
2023	71,680	41	7

The expected displaced emissions can be compared to the emissions typical of passenger cars. EPA reports that an average motor vehicle in New York State emits 5.1 tons of CO<sub>2</sub>e per vehicle



year (EPA, 2015). Assuming that the average distance traveled per year is 11,500 miles, it is estimated that operation of the facility in 2023 would displace CO<sub>2</sub>e emissions from the operation of approximately 14,000 passenger cars<sup>2</sup> respectively.

**Table 17-2. Garnet Energy Center Displaced Vehicles Summary**

Year	CO <sub>2</sub> (tons)	CO <sub>2</sub> (tons/Vehicle-Year)*	CO <sub>2</sub> Vehicle Offset†
2023	71,680	5.1	14,055
* tons of CO <sub>2</sub> per vehicle mile traveled. † Number of passenger cars which are predicted to emit CO <sub>2</sub> equivalent to the emissions displaced by operation of the Facility, assuming average passenger car travels 11,500 miles per year.			

**17(e) Offsite Consequence Analysis for Ammonia Stored On-Site**

Ammonia will not be stored or used on-site during Facility construction or operation. Therefore, offsite consequences of any accidental release of ammonia have not been analyzed for the Project.

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<sup>2</sup> For example, (71,680 ton/year CO<sub>2</sub>e) / (5.1 tons CO<sub>2</sub>e/vehicle-year) = 14,055 cars

## References

- Energy Information Agency (EIA) (2019a). *New York Electricity Profile 2017*. Available at: <https://www.eia.gov/electricity/state/>. (Accessed: November 2020). See “Full data tables 1-14”.
- Environmental Protection Agency (EPA) Office of Transportation and Air Quality. *EPA-420-F-18-008. Greenhouse Gas Emissions of a Typical Passenger Vehicle*. Available at: <https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockkey=P100U8YT.pdf>. (Accessed: November 2020).
- Federal Highway Administration (FHWA) (2018), *State & Urbanized Area Statistics*. <https://www.fhwa.dot.gov/ohim/onh00/onh2p11.htm>. (Accessed: November 2020)
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- New York State Public Service Commission (NYSPSC) (2016). *Clean Energy Standard*. Available at: <https://www.nyserda.ny.gov/All-Programs/Programs/Clean-Energy-Standard>. (Accessed: November 2020).
- New York Session Laws Chapter 106 Senate Bill S6599 (S6599) (2019). Available at: <https://www.nysenate.gov/legislation/bills/2019/s6599>. (Accessed: November 2020).