#### **DRAFT**

# Petition No. 1431 SunJet Energy, LLC Thomson Road, Bethlehem CT

Staff Report April 1, 2021

### Introduction

On September 15, 2020, the Connecticut Siting Council (Council) received a petition (Petition) from SunJet Energy, LLC (Petitioner) for a declaratory ruling pursuant to Connecticut General Statutes (CGS) §4-176 and §16-50k for the construction, operation and maintenance of a 1.99 megawatt (MW) alternating current (AC) solar photovoltaic electric generating facility located at 0, 78, and 84 Thomson Road, Bethlehem, Connecticut.

Pursuant to Regulations of Connecticut State Agencies (RCSA) §16-50j-40 on or about September 2, 2020, the Petitioner notified the abutting property owners and Town of Bethlehem officials, state officials and agencies of the proposed project.

Pursuant to CGS §4-176(e) of the Uniform Administrative Procedure Act (UAPA), an administrative agency is required to take action on a petition within 60 days of receipt, and therefore, the deadline for this petition was November 14, 2020. In response to the Coronavirus pandemic, on September 8, 2020, Governor Lamont issued Executive Order No. 9A that provides for a 90-day extension of statutory and regulatory deadlines for administrative agencies thus extending the deadline to February 12, 2021. On February 1, 2021, pursuant to CGS §4-176(e) of the UAPA, the Council voted to set the date by which to render a decision as no later than June 12, 2021, which is the statutorily mandated 180-day decision deadline under CGS §4-176(i) and Governor Lamont's Executive Order No. 9A.

The Council issued interrogatories to the Petitioner on December 3, 2020, January 12. 2021 and February 2, 2021. On December 29, 2020, January 28, 2021 and February 18, 2021 the Petitioner submitted responses to the Council's interrogatories of which one included photographic documentation of site-specific features intended to serve as a "virtual" field review of the project.

#### **Municipal Consultation**

The Petitioner discussed the project with the Town of Bethlehem (Town) First Selectman on several occasions in 2019 and 2020. On September 2, 2020, the Petitioner notified Town officials of the project by certified mail.

At the request of the Town and the landowner, the project was shifted to the west side of the property to allow for continued farming activities along the crest of a hill.

The Petitioner mailed letters to all property abutters and area neighbors. Most of the abutters and neighbors are members of the landowner's family or extended family. The Petitioner did not receive any comment.

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On September 16, 2020, the Council sent correspondence to the Town stating that the Council has received the Petition and invited the Town to contact the Council with any questions or comments by October 15, 2020. No comments were received from the Town.

## **State Agency Comments**

On September 16, 2020, the Council sent correspondence requesting comments on the proposed project from the following state agencies by October 15, 2020: Department of Energy & Environmental Protection (DEEP); Department of Agriculture (DOAg); Department of Public Health (DPH); Council on Environmental Quality (CEQ); Public Utilities Regulatory Authority (PURA); Office of Policy and Management (OPM); Department of Economic and Community Development (DECD); Department of Emergency Services and Public Protection (DESPP); Department of Consumer Protection (DCP); Department of Labor (DOL); Department of Administrative Services (DAS); Department of Transportation (DOT); the Connecticut Airport Authority (CAA); and the State Historic Preservation Office (SHPO).

In response to the Council's solicitation, CEQ submitted comments on September 30, 2020. These comments are attached. The DOT's Bureau of Engineering and Construction submitted a no comment letter on October 16, 2020.

While the Council is obligated to consult with and solicit comments from state agencies by statute, the Council is not required to abide by the comments from state agencies. <sup>1</sup>

#### **Public Act 17-218**

Effective July 1, 2017, Public Act 17-218 requires, "for a solar photovoltaic facility with a capacity of two or more megawatts, to be located on prime farmland or forestland, excluding any such facility that was selected by DEEP in any solicitation issued prior to July 1, 2017, pursuant to section 16a-3f, 16a-3g or 16a-3j, the DOAg represents, in writing, to the Council that such project will not materially affect the status of such land as prime farmland or DEEP represents, in writing, to the Council that such project will not materially affect the status of land as core forest." The proposed facility has a generating capacity of 1.99 MW, therefore, it is exempt from the provisions of Public Act 17-218.

#### **Public Benefit**

The project would be a distributed energy resource facility as defined in CGS § 16-1(a)(49). CGS § 16a-35k establishes the State's energy policy, including the goal to "develop and utilize renewable energy resources, such as solar and wind energy, to the maximum practicable extent." The 2018 Comprehensive Energy Strategy (2018 CES) highlights eight key strategies to guide administrative and legislative action over the next several years. Specifically, Strategy No. 3 is "Grow and sustain renewable and zero-carbon generation in the state and region." Furthermore, on September 3, 2019, Governor Lamont issued Executive Order No. 3, which calls for the complete decarbonization of the electric sector by 2040. The proposed facility will contribute to fulfilling the State's Renewable Portfolio Standard and Global Warming Solutions Act as a zero emission Class I renewable energy source.

The Petitioner was awarded a non-extendable 15-year contract with Eversource under the state's Low and Zero Emissions Renewable Energy Credit Programs (LREC/ZREC Program) to sell the renewable energy

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<sup>&</sup>lt;sup>1</sup> Corcoran v. Connecticut Siting Council, 284 Conn. 455 (2007)

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credits (RECs) from the facility. The LREC/ZREC Program was developed as part of Public Act 11-80, "An Act Concerning the Establishment of the [DEEP] and Planning for Connecticut's Energy Future." The LREC/ZREC Program is not among the competitive energy procurement programs that are exempt from Public Act 17-218.

At the end of the 15-year contract period, the Petitioner would seek other revenue mechanisms for the energy produced by the facility. The Petitioner has a 20-year lease, with two optional 5 year extensions, with the landowner.

The Petitioner does not intend to participate in the ISO-New England, Inc. (ISO-NE) Forward Capacity Auction.

## **Proposed Site**

Pursuant to a lease agreement with the property owner, the Petitioner proposes to construct the solar facility on an 11.84-acre site<sup>2</sup> located on three contiguous parcels at 0, 78 and 84 Thomson Road used as a dairy farm. The site consists of managed hayfield.

The solar field portion of the facility would occupy 11.26 acres of the 0 Thomson Road parcel and 0.58 acres of the 84 Thomson Road parcel. A project interconnection would occur within a 1,110 square foot easement at 78 Thomson Road.

The 0 Thomson Road parcel, 74.04 acres in size, consists of cow pasture and hayfields, with the eastern and northern portion containing woodlands and wetlands. Several residences and farm buildings are located in the southern portion of the parcel adjacent to Thomson Road. The 84 Thomson Road parcel, 3.33 acres in size, consists of open fields and a residence.

The Town does not have zoning regulations. Surrounding land use consists of rural residential, agricultural, and undeveloped land. The nearest off-site residence is located at 87 Guilds Hallow Road, approximately 174 feet northwest of the solar array perimeter fence.

The Petitioner selected the site due to limited environmental impact, topography and the proximity to an electrical interconnection. Pursuant to CGS §16-50p(g), the Council has no authority to compel a parcel owner to sell or lease property, or portions thereof, for the purpose of siting a facility.<sup>3</sup>

### **Proposed Project**

The Project consists of the installation of 6,804 400 Watt photovoltaic modules arranged in linear rows extending in a north-south direction. The modules would be installed on a single-axis motorized horizontal east/west tracker system with multiple horizontal panel tilt angles (+/- 55 degrees). The modules would be installed with a minimum ground clearance of approximately four to six feet depending on topographical conditions. The maximum height to the tops of the solar panels would be approximately 8 feet at full tilt.

<sup>&</sup>lt;sup>2</sup> RCSA §16-50j-2a(29), "Site" means a contiguous parcel of property with specified boundaries, including, but not limited to, the leased area, right-of-way, access and easements on which a facility and associated equipment is located, shall be located or is proposed to be located.

<sup>&</sup>lt;sup>3</sup> Corcoran v. Connecticut Siting Council, 284 Conn. 455 (2007); CGS §16-50p(g) (2019).

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The modules would be mounted in portrait and would be supported on racking tables with each table holding between 54 and 81 modules, depending on the row arrangement. The racking support posts would be driven into the ground to a depth of approximately 10.5 feet, depending on specific soil conditions. A geotechnical investigation found subsurface conditions to include subsoil, glacial till, and weathered rock. In areas where there is ledge or boulders, pre-drilling would be required to install posts with ground screws.

The majority of the wiring would be installed on the racking system. Where wiring is not installed on the racking system, it would run in conduit.

The Project is divided into two systems, a 0.99 MW AC system and a 1.0 AC MW system. Each system would require eight inverters. The AC power output from the inverters would feed into a step-up transformer to raise the voltage to match the existing electric distribution system. The transformer and related switchgear would be located on a 15-foot by 20-foot concrete pad in the southern portion of the facility. One interconnection would be from the 78 Thomson Road parcel and a second interconnection would be from the 84 Thomson Road parcel. The existing distribution system is three-phase and no line upgrades are required.

The maximum efficiency of the proposed 400-Watt solar panels would be approximately 17 percent. The annual power degradation would be approximately 0.8 percent per year. The Petitioner has no current plan to incorporate a battery energy storage system. The Project is not designed to serve as a microgrid.

The Petitioner has an interconnection agreement with Eversource. The interconnection would consist of one overhead utility line supported on four new utility poles. An ISO-NE interconnection study is not anticipated due to the small scale of the Project.

The site would be accessed using an existing driveway on the 84 Thomson Road parcel. From the upper end of the driveway, a new 320-foot long gravel drive would be constructed to the solar field access gate. The solar field would be enclosed by a seven-foot tall chain link fence with a 4 to 6 inch gap between the mesh and the ground to allow for small wildlife movement.

The proposed site is located on the western side of a north-south oriented hill. Elevations on the site range from 750 feet above mean sea level (amsl) to 830 amsl near the crest of the hill. Approximately 3.8 acres of the solar field (32 percent) of the facility area would be installed on slopes greater than or equal to 15 percent. Some areas would have solar modules installed on slopes between 25 and 30 percent.

Earthwork at the site would mostly include excavation and grading to develop stormwater control basins and associated swales with approximately 3,500 cubic yards of cut and 800 cubic yards of fill. The excess 2,700 cubic yards of cut would be deposited on the host parcels in a location determined by the landowner. The excess soils would not be deposited within 100 feet of wetlands and would be permanently stabilized per the 2002 Erosion and Sedimentation Control Guidelines. The soil may be used during Project decommissioning to fill in the stormwater control features.

Construction would occur over a 3 to 4 month period. Typical construction hours and work days of the week are as follows: Monday – Saturday 7:00 AM to 5:00 PM.

## **Public Safety**

The proposed project would comply with the National Electrical Code, National Electrical Safety Code and National Fire Protection Association codes and standards, as applicable. The Petitioner has designed the system in accordance with the CT State Fire Prevention Code, Section 11.12.3 - Ground Mounted Photovoltaic System Installations.

The nearest federally-obligated airport to the site is Waterbury-Oxford Airport in Oxford, located 11.3 miles south of the proposed facility. Under Federal Aviation Administration (FAA) criteria, the Project would not be a Hazard to Air Navigation or require a FAA glare analysis. A small privately-owned airport with a grass runway (Thomson Field Airport - 5CT5) is located on the property and is owned and operated by the landowner.

The Facility would be remotely monitored and would have the ability to remotely de-energize in the event of a fault or other power outage event and/or emergency. The Petitioner is willing to offer training to local emergency responders, if requested.

The proposed facility would be in compliance with DEEP Noise Control Standards. The nearest noise producing equipment is a transformer located 320 feet from the property line. Project-related operational noise is not expected to exceed 30 dB at the nearest property line. Construction noise is exempt from DEEP Noise Control Standards.

The solar field would be enclosed by a seven-foot high chain link fence. The main entrance to the Facility would be gated, limiting access solely to authorized personnel. All emergency response personnel would be provided keyed access.

The Site is not located within a Federal Emergency Management Agency designated 100-year or 500-year flood zone.

The stormwater basins are excavation basins and a Dam Safety permit is not anticipated.

A Petroleum Materials Storage and Spill Prevention plan is included on the Project site plans.

# **Environmental Effects and Mitigation Measures**

Historic and Recreational Resources

By letter dated January 14, 2021 to the Petitioner, SHPO concurred with the findings of the historic/archeological study performed for the site and determined the project would have no effect on archaeological or historic resources.

No public parks or other publicly accessible recreation resources are located adjacent to the site. The nearest recreation area is Long Meadow Park located 1.2 miles north of the proposed site. The Project would not be visible from this park.

## Visibility

There are no Town or state scenic roads in the vicinity of the proposed project.

The project would not be visible from adjacent roads except for a short section of Thomson Road where the road crosses the crest of the hill adjacent to the site.

The site is located on the western slopes of a hill with intervening wooded vegetation between the site and most residences. No landscaping is proposed.

## Agriculture

The subject property contains prime farmland soils according to mapping maintained by the United States Department of Agriculture (USDA) Natural Resource Conservation Service. Under PA 17-218, "prime farmland" means land that meets the criteria for prime farmland as described in 7 Code of Federal Regulations (C.F.R.) 657, as amended from time to time. 7 C.F.R. 657 defines prime farmland in relevant part as "land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops, and is also available for these uses."

Approximately 4.1 acres of Prime Farmland Soils are within the project limits. Currently, the project area is managed as a hayfield. With exception of the proposed stormwater basins, the Petitioner intends on using existing grades to the extent feasible to install the solar facility.

The DOAg has not purchased the development rights of the proposed site.

The Project site is currently enrolled in the Connecticut Public Act 63-490 Program for agricultural land tax abatement. Once constructed, the project area would no longer be eligible for this program.

### Wetlands and Watercourses

The Petitioner performed a wetland and vernal pool survey at the site in April 2019 and June 2020. Two wetlands were identified proximate to the site including a man-made farm pond approximately 50 feet north, and upgradient, of the project site, and a forested groundwater slope wetland located approximately 50 feet west of the project site, on an abutting parcel. No vernal pools were identified.

To protect wetland and watercourses during construction, the Petitioner would implement a Wetland Protection Plan (WPP) to minimize potential adverse impacts to wetland resources. The WPP includes erosion and sedimentation controls consistent with the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control, contractor education, inspections and reporting by an environmental monitor, and a materials storage and spill prevention plan. A 50-foot buffer to the wetlands would be established during and after construction.

### Wildlife

A DEEP Natural Diversity Data Base (NDDB) project review, dated June 15, 2020, identified three State-listed Special Concern grassland bird species that have been recorded in the area: Savannah sparrow, bobolink and brown thrasher. Subsequent field surveys conducted in May and June 2020 identified all three species on the property with the brown thrasher using old field habitat north of the project site, and the boblink and Savannah sparrow utilizing the hayfields on the property.

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DEEP recommended grassland bird protective measures, including but not limited to, avoiding construction in grassland bird habitat during the breeding season from April 1 through August 30, establishing a vegetative management plan for the solar array that includes native pollinators and reduced mowing, and vegetative maintenance practices to promote grassland bird habitat grassland for areas outside of the perimeter fence.

The Petitioner does not intend on removing topsoil or hayfield grasses in the solar array area during construction. A native wildflower mix would be applied to areas of the hayfield disturbed from construction activities. Vegetation management would be avoided from April 15 to August 15 to avoid disturbance to state-listed grassland birds.

The northern long-eared bat (NLEB), a state-listed Endangered Species and federally-listed Threatened Species, is known to occur in Connecticut. However, the nearest known NLEB habitat resource is located four miles northeast of the site and no project-related impacts to NLEB are expected.

#### **Forest**

No core forest would be affected by the proposed Project. No tree clearing is proposed to construct the project. Some tree trimming may be necessary in the future if tree canopy shading of the array affects project performance.

## Air Quality

The project would not produce air or water emissions as a result of operation. The solar project would not produce air emissions of regulated air pollutants or greenhouse gases during operation.

The Petitioner estimates that there would be an 86 percent reduction in greenhouse gas emissions from Project operation over a 20-year period when compared to the operation of a natural gas fueled electric generating facility with equivalent megawatt-hour (MWh) production.

#### Water Quality

The site parcel is not within a DEEP-designated Aquifer Protection Area. The facility would not use or discharge water during site operations.

Private drinking water wells are located near the site but the Petitioner does not anticipate construction activities such as vibrations associated with driving the racking posts to effect well water flow or water quality.

## Stormwater

Pursuant to CGS Section 22a-430b, DEEP retains final jurisdiction over stormwater management and administers permit programs to regulate stormwater pollution. DEEP regulations and guidelines set forth standards for erosion and sedimentation control, stormwater pollution control and best engineering practices. The DEEP Individual and General Permits for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities (Stormwater Permit) requires implementation of a Stormwater Pollution Control Plan to prevent the movement of sediments off construction sites into nearby water

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bodies and to address the impacts of stormwater discharges from a project after construction is complete. A DEEP-issued Stormwater Permit is required prior to commencement of construction.

A construction sequence is included on the site plans that include the establishment of erosion control measures, construction and stabilization of the stormwater basins/swales followed by installation of site infrastructure.

Two post-construction stormwater basins are proposed. Stormwater Basin 1 is an elongated basin located along the west property line. A diversion swale would direct stormwater flowing down the hillside in the northern portion of the array into the basin. The basin outfall is directed toward the off-site wetland. Stormwater Basin 2 is located in the southwestern corner of the solar field. A swale would direct flows from the central portion of the array into the basin with the discharge point onto the 84 Thomson Road parcel.

The Petitioner met with the DEEP Stormwater Division on January 29, 2020 but at that time the project included fixed tilt solar modules on steep slopes, potentially causing water channelization along the panel drip edge. The Project was subsequently modified to a tracker system which would serve to dissipate any drip edge channelization effects.

The Petitioner submitted a Stormwater Permit application to DEEP on October 2, 2020 (Application No. 202011676). The two stormwater basins discharge at locations where existing stormwater leaves the site. The basins were designed with a hydrologic soil group reduction to account for any additional stormwater flows that might result from site development.

## **Operation and Maintenance**

A post-construction Operations and Maintenance Program has been established that includes provisions for periodic inspections of physical site features and structural and electrical components.

Solar panel inspections can be conducted by on-site personnel as well as by drone. Inverter fluctuations can also detect damaged panels.

The solar panels are not anticipated to require regular cleaning. No cleaning agents are anticipated to be used at the site.

The tracker control unit includes a sensor for snow load and height. The rack would articulate to its maximum tilt to shed snow load, as needed.

## **Decommissioning**

A Decommissioning Plan was submitted to the Council and has provisions for project removal and component recycling when operation of the facility is discontinued. Following the removal of project related equipment, the Petitioner would stabilize and restore the site in accordance with the lease agreement with the property owner.

The manufacturer of the selected solar panels has conducted Toxicity Characteristic Leaching Procedure (TCLP) testing on the panels. The TCLP test indicates the panels would not be characterized as hazardous waste at the time of disposal.

## Conclusion

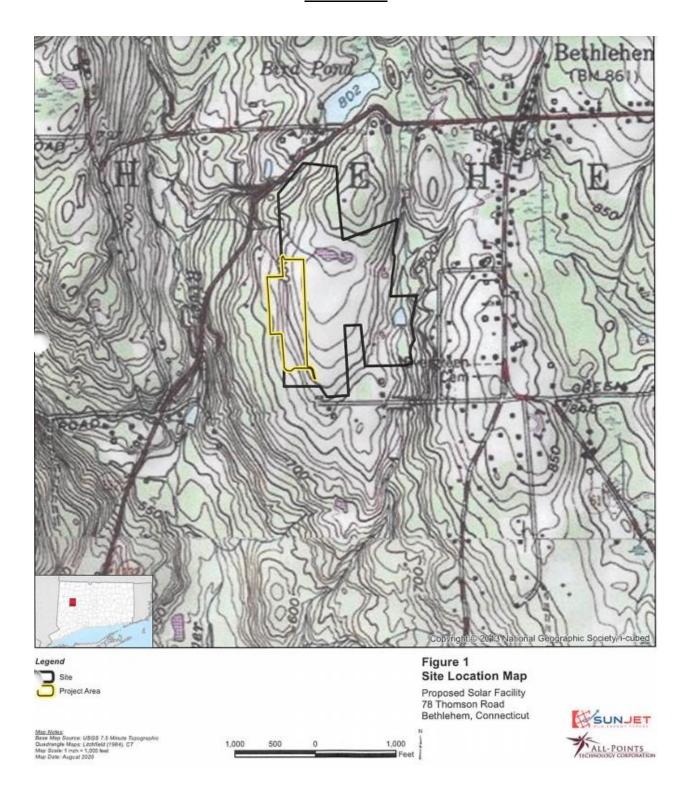
The project is a grid-side distributed resource with a capacity of not more than sixty-five megawatts, meets air and water quality standards of the DEEP, and would not have a substantial adverse environmental effect. The proposed project will not produce air emissions, will not utilize water to produce electricity, was designed to minimize environmental impacts, and furthers the State's energy policy by developing and utilizing renewable energy resources and distributed energy resources. Furthermore, the project was selected under the state's LREC/ZREC Program.

#### Recommendations

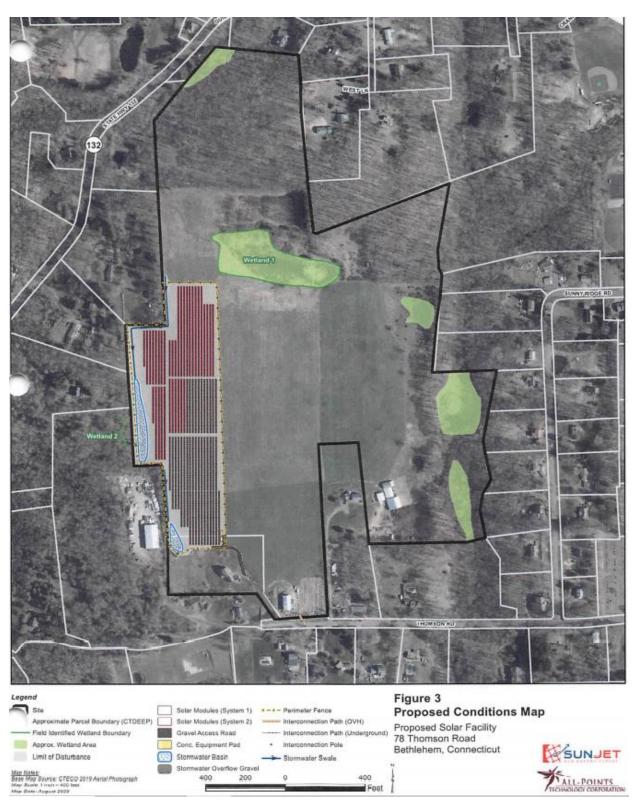
If approved, staff recommends the following conditions:

- 1. Approval of any project changes be delegated to Council staff;
- 2. Submit the final structural design for the racking system stamped by a Professional Engineer duly licensed in the State of Connecticut prior to commencement of construction;
- 3. Submit the grassland bird species mitigation plan consistent with the DEEP NDDB review letter dated June 15, 2020 prior to commencement of construction; and
- 4. Submit a copy of the DEEP Stormwater Permit prior to the commencement of construction.

# **Site Location**



# **Aerial Image with Site Layout**



# **ATTACHMENT – CEQ Comments**



#### STATE OF CONNECTICUT

# COUNCIL ON ENVIRONMENTAL QUALITY

Keith Ainsworth

September 30, 2020

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PETITION NO. 1431 – SunJet Energy, LLC petition for a declaratory ruling, pursuant to Connecticut General Statutes §4-176 and §16-50k, for the proposed construction, maintenance and operation of a 1.99-megawatt AC solar photovoltaic electric generating facility and associated electrical interconnection to be located at 0, 78 and 84 Thomson Road in Bethlehem, Connecticut.

Dear Ms. Bachman:

The Council on Environmental Quality ("the Council") supports the development of clean, renewable energy technologies on appropriate sites in Connecticut and offers the following comments with regard to Petition No. 1431 (Petition):

#### 1. Stormwater and Wetlands

The Petitioner states that the proposed project "has been designed to generally meet the requirements of DEEP's January 2020 draft Appendix I, Stormwater Management at Solar Array Construction Projects.", The Council recommends that the Petitioner explicitly meet all the requirements of Appendix I, or provide specific details as to which requirements will not be met and why.

In addition, the Petitioner states that the proposed facility would be approximately fifty feet from both Wetland 1 (northeast) and Wetland 2 (west). The value of wetland buffers to reduce wetland filling and contamination is well established. 

Consequently, the Council recommends that the Petitioner maintain a one-hundred foot buffer from these identified wetlands.

#### 2. Wildlife

A review of the US Fish and Wildlife Service (USFWS), Information for Planning and Conservation (IPac) tool indicates that there is the possibility that eleven bird species, which are either on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention, may be present at or near the proposed project location. The Petitioner also confirmed that three state-listed bird species, identified by the Connecticut Department of Environmental Protection Natural Diversity Database (NDDB), were present at the proposed site, which also included bobolink (one of the

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<sup>&</sup>lt;sup>1</sup> Planner's Guide to Wetland Buffers for Local Governments, Environmental Law Institute, March 2008; https://www.ecosystemmarketplace.com/wp-content/uploads/archive/documents/Doc\_457.pdf 79 Elm Street, Hartford, CT 06106

Bird species on the USFWS BCC list). Consequently, the Council recommends that the Petitioner should propose all appropriate conservation/mitigation measures to minimize the potential impact on those BCC species.

#### 3. Noise and Visibility

The Petitioner states that "once the Project is constructed and operational, the only equipment that will emit noise consists of the inverter cooling which cannot be heard outside of the Project fence line." However, the Petitioner also acknowledges that "no formal noise study was completed for the Project". The Council recommends that the Petitioner confirm that noise from the proposed project would not exceed applicable noise standards at the nearest residential property lines.

The Petitioner notes that no trees will be removed for the proposed project. However, residents located west of the proposed facility may have a dramatically different view of the current agricultural field if the proposed project is constructed. Therefore, the Council suggests that the Petitioner consider planting native, evergreen, deer-resident plants along the western fence line, where appropriate, to minimize the visual impact of the proposed facility.

#### 4. Prime farmland soils

The proposed project would be located on agricultural land. The Petitioner provided a map that depicts areas along the western portion of the proposed site as being "prime farmland", but failed to note that the area which comprises the majority of the central portion of the proposed site have soils that may be Paxton and Montauk fine sandy loams, which are soils that are designated as "farmland of statewide importance". As with other solar electric generating facility proposals, the Council notes that the continuing accretion of multiple individual decisions to site solar facilities on productive agricultural land has cumulative regional economic and ecological implications that go beyond the loss of soils.

Thank you for your consideration of these comments. Please do not hesitate to contact the Council if you have any questions.

Sincerely,

Peter Hearn,

Executive Director