



**Petition by Greenskies Clean Energy LLC for a
Declaratory Ruling, Pursuant to Connecticut General
Statutes §4-176 and §16-50k, for the Proposed
Construction, Operation and Maintenance of a 5 MW AC
Ground-mounted Solar Photovoltaic Electric Facility
Located at Mulnite Farms in East Windsor, Connecticut**

**Prepared for
The Connecticut Siting Council**

August 24, 2020



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1.0 Introduction

This is a Petition for a Declaratory Ruling, pursuant to Connecticut General Statutes §4-176 and §16-50k, that no Certificate of Environmental Compatibility and Public Need is required for the development, construction, operation and maintenance of a proposed solar photovoltaic project (the Project) to be located in the Town of East Windsor, Connecticut. The Project is being proposed by Greenskies Clean Energy (GCE or Petitioner) and consists of the development of two ground-mounted solar photovoltaic (PV) systems: (i) a one (1) megawatt (MW) alternating current (AC) system located at Wapping Road, East Windsor, Connecticut; and (ii) a four (4) MW solar photovoltaic system located on Miller Road, East Windsor, Connecticut. See Figure 1 – Site Location Map and Figure 2 – Proposed Project Areas Aerial.

The Project will participate in Connecticut's Renewable Energy Credit program. For the one megawatt solar system, GCE entered into one *Standard Contract for the Purchase and Sale of Connecticut Class 1 Renewable Energy Credits from Low or Zero Emission Projects* for the output of the one MW system with The Connecticut Light & Power Company, d/b/a Eversource Energy (Eversource) dated December 2, 2020 and was given a contract #L9-7016. The delivery term start date for this ZREC contract is April 1, 2022.

The four megawatt solar system will be a Shared Clean Energy Facility under the SCEF program, which has been designated as Project #SCEF 1-6974. This shared use would promote agricultural activities and renewable energy, specifically increased generation from renewable energy resources and diversification of the State's renewable energy portfolio. The Tariff Terms Agreement Approval Date for In-Service Date for this portion of the Project is December 31, 2023.

Authorization by the Connecticut Siting Council (CSC) via approval of this Petition will allow the Project to be constructed and assist the State of Connecticut in achieving its goal of energy conservation and sustainability. Pending approvals, the Project will commence financing, detailed engineering, procurement, and

construction efforts in 2022, with commercial operation planned for the entire Project in 2022.

The Project is located on two parcels within the Town of East Windsor's R-3 Residential, and A-1 Agricultural/Residential zoning district and is comprised of approximately 50 acres. The four MW solar array will be developed on 25.36-acre parcel and the one MW solar array will be developed 24.37-acre parcel. See Figure 3 – Zoning Map. The parcels are currently active farmland with existing farm roads and tobacco barns and have frontage to the west along Miller Road and Wapping Road. See Figure 4 – Tax Parcel Map. The topography of the site slopes gently north across the site limits. See Figure 5 – Site Survey and Figure 6 – Slope Map.

2.0 Petitioner

Greenskies Clean Energy LLC (“Greenskies” or “GCE”) is a limited liability company with offices at 127 Washington Ave, North Haven, CT 06473. GCE, as Petitioner, proposes to develop, engineer, procure, construct (EPC) and own the Project as a Class I renewable energy resource (as defined by Section 16-1 (a) (20) of the Connecticut General Statutes). GCE develops, finances, constructs, and maintains clean, renewable-energy projects throughout the United States. In conjunction with its affiliate, Clean Focus Yield, GCE offers integrated solar and battery-storage solutions to commercial, industrial, municipal, and utility customers. From beginning to end – origination through construction and then lifetime operation – customers work with a single delivery team. GCE focuses on delivering clean energy, peak performance, and maximum energy savings. The company is an offshoot of Greenskies Renewable Energy LLC, which was founded in 2009 and has constructed and operates over 230 MW of C&I solar projects throughout the country. The power generated by the portfolio is sold under long-term contracts that are typically 20 years, and the majority of the buyers have investment-grade credit ratings.

Clients include Target Corporation, Walmart, Inc., and Amazon. According to the Solar Energy Industry Association, Target and Walmart are the number one and two solar users at US-based facilities, and Amazon is number ten. GCE is the partner of choice for large corporations and owners of real estate seeking to take a company- or portfolio-wide approach to solar energy adoption, and GCE is consistently ranked as one of the top solar developers in the United States.

As a vertically-integrated company, Greenskies manages every step of the solar development and implementation process. From project origination to design and engineering to construction and, ultimately, operation and maintenance, Greenskies Clean Energy brings years of industry knowledge and expertise at every level. Moreover, with hands-on management of on-site performance and sophisticated reporting processes in place, both during construction and operation and maintenance, the company is able to ensure safety, quality control and optimal electrical generation throughout the life of each project.

Correspondence and communications regarding this Petition should be addressed to both of the following individuals:

Bonnie Potocki
Project Developer
Greenskies Clean Energy LLC
127 Washington Ave
West Building, Garden Level
North Haven, CT 06473
bonnie.potocki@greenskies.com
(860) 740-5289

Lee D. Hoffman
Pullman & Comley, LLC
90 State House Square
Hartford, CT 06103-3702
lhoffman@pullcom.com
(860) 424-4315

3.0 Proposed Project

3.1 Project Site Overview

The Project site is located on two parcels in the Broad Brook neighborhood of East Windsor to the west-southwest of the intersection of Rockville Road and Barber Hill Road. The Town of East Windsor's Assessor's Office has the parcels listed as MBL - 028 68 023 on Miller Road and MBL- 038-68-030 on Wapping Road. These parcels are currently owned by Leonard A. Mulnite, Trustee. The parcels are a portion of approximately 104 acres of contiguous farmland currently being used by Mulnite Farms Inc. to grow shade tobacco and corn. The Mulnite family has been farming the property since they acquired it in 1905. Rental income generated by the solar project will support the landowner's business, Mulnite Farms Inc.

Due to the increasing economic challenges of farming in Connecticut, the Mulnite family has sought to supplement its business by selling or developing a portion of their land, the two most appealing options being residential and solar. Residential developers have expressed interest in purchasing and subdividing the property, however the Mulnite family is reluctant to part with land that has been in the family for over a century. Developing a solar farm on the site allows the Mulnite family to retain ownership of the property while generating a supplemental source of income through a lease agreement with Greenskies. This arrangement allows future generations to farm the land upon decommissioning the project, should they so choose.

3.1.1 Existing Site Land Use

Currently, the Project site is being used exclusively for agricultural purposes. From May to July, the site is used to grow shade tobacco, which is then cured and processed in tobacco sheds for 60 days. While the site is primarily used to grow tobacco, other crops such as squash and corn are occasionally grown as well. During fall and winter, the site is cover cropped and remains dormant until the growing season when it is tilled and seeded.

3.1.2 Surrounding Land Use

The area surrounding the Project site primarily consists of farm fields and single-family residences. The three fields comprising the Project sites are owned by Leonard Mulnite and are a part of Mulnite Farms Inc.'s farming operation. Most of the direct abutting residences are concentrated east, west, and south of the Project sites on Barber Hill Road, Miller Road, and Lindsay Lane. A transmission line runs north/south through the one of the solar project sites on the parcel accessed from Miller Road.

3.1.3 Project Site Alternatives

The Mulnite Farms Project site was selected by Greenskies to not only be suitable for a solar PV project but to also have minimal natural resource and environmental impacts, to not have adverse effects on quality forest land or agricultural land, and not diminish the quality of life of those who live in the vicinity. It was also important to Greenskies to select a site that allows interconnection of the generation facility to a feeder and substation of the utility company that is compatible with their grid and goal of better serving customers.

Greenskies conducted an extensive search of both public and private land resulting in the selection of this parcel. Third party contractors are used to understand the biological, environmental, historical, and archeological impacts of solar development on selected sites. While all development has impact on the area and community, it is Greenskies' opinion that the social and environmental impacts of this project site are a net positive.

In the course of selecting the Project Site, members of GCE evaluated several potential sites for renewable energy projects throughout the state. Alternative sites that were of suitable size were investigated and, in each case, environmental concerns and cost considerations rendered the sites less suitable than the Project Site. The cost considerations were chiefly due to either measures that would need to be taken to address wetlands or wildlife concerns or due to the costs of interconnection to distribution or transmission facilities from these sites. As such, the Project Site was selected as the site

that most appropriately balanced the land required to construct the project with the least amount of impact to wetlands, wildlife, core forest and/or prime farmland soils.

3.2 Project Description

3.2.1 Site Access

There exist multiple access points to the proposed solar arrays at the Site. Unpaved full-service access driveways exist from Barber Hill Road, Rockville Road, and/or Miller Road, all of which are paved local roads. An improved stone driveway apron is proposed to be constructed at any site construction exit for erosion control.

Existing farm roads traversing the site will be reused to the maximum extent feasible. Approximately 900 LF of new 15-ft wide internal gravel roads will be constructed within the Project area to provide centralized access to the proposed solar array, electrical equipment, and stormwater detention basins. To minimize site disturbance, the roadways are proposed to be constructed on prepared subgrades with a 12-inch layer of processed stone and matching existing grades to the greatest extent feasible. See Figure 7 – Proposed Project Layout and Appendix A – Sheet 3.0 Layout and Materials Plan – Overall.

3.2.2 Solar Facility Design and Layout

The Solar Project will consist of three photovoltaic arrays on two different parcels, adjacent to Wapping Road and Miller Road. Two PV arrays are on the Miller Road Parcel. One PV array is on the Wapping Road parcel. The photovoltaic arrays (PV) are anticipated to be comprised of 475-watt panels (depending on the state of module technology at the time of construction) arranged two-high in portrait set at a 30-degree angle to balance the solar yield, located in the best available area within the property, to maximize annual energy production. The panels will be mounted on steel racking with driven posts to a depth to attain sufficient structural capacity to resist the loads from the weight of the panels, as well as environmental loads including snow, wind, and seismic forces.

The PV array on Wapping Road is anticipated to have a nameplate capacity of one (1) MW AC and be electrically oriented in direct current strings of 24 panels, which will be combined with adjacent circuits for a total of eight inverters into 125 kilowatt mounted throughout the array racking. There will be 112 strings and 2,688 panels. The DC/AC ratio is 1.27. The power from these inverters will be directed to a transformer, which will modify the voltage to enable the distances of the conduit runs. The four (4) MW AC solar project is comprised of two PV arrays. The arrays are anticipated to be electrically oriented in direct current strings of 24 panels, which will be combined with adjacent circuits for a total of 32 into 125 kilowatt mounted throughout the array racking. There will be 447 strings and 10,728 panels. The DC/AC ratio is 1.27. The power from these inverters will be directed to a transformer, which will modify the voltage to enable the distances of the conduit runs.

3.2.3 Electrical Interconnection

Interconnection applications for all three array systems were submitted with Eversource in May 29, 2020. An impact study of the project is being conducted now through PSCAD modeling by Eversource. PSCAD is a software modeling tool for simulating the effects on the existing transmission system. The proposed project is proposed to interconnect with the Barbour Hill 23J substation located near the intersection of Frazer Fir Road and Barbour Hill Road in South Windsor. The project site is located approximately 2.61 circuit miles to the substation and will require some upgrades to existing infrastructure. Eversource provided GCE with interconnection agreement on February 17, 2021. As of July 2021, Eversource has indicated that a transmission study will not be required. Eversource is currently conducting simulations using PSCAD modeling.

3.2.4 Fencing and Site Security

A 7-foot high chain link fence is proposed to be installed around the perimeter of the solar array field to provide site security, as well as to address National Electric Code requirements. The perimeter fencing will extend around the array. There will be no gap

between the ground and fencing to accommodate sheep grazing as discussed in greater detail in Section 4.1 of the Petition. There are intended to be five (5) access gates, with locking hardware, proposed along the primary site access drive at the first corner and at both north-south gravel roads. See Appendix A – Sheet 3.1-3.3 - Layout and Materials Plan.

3.3 Stormwater Management

A Stormwater Management Report has been prepared in accordance with the 2004 State of Connecticut Stormwater Quality Manual and with the Connecticut General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities (“Stormwater General Permit”) effective December 31, 2020. A copy of this Report is attached as Appendix F.

As required and/or recommended, available soil mapping was reviewed; however, geotechnical subsurface testing within the proposed basin footprints has not been able to have been completed to date due to the planting of shade tobacco. This geotechnical investigation will be completed as early as feasible and a copy of the results will be provided to the Council for reference. As indicated in the attached Stormwater Management Report, predevelopment drainage patterns have been maintained to the greatest extent feasible in an effort to maintain pre-development flows off-site areas.

A total of four (4) stormwater management basins with supporting swales have been designed and are strategically located throughout the project site to maintain existing drainage patterns. One basin will be constructed at the Project Site on Wapping Road. Three basins will be constructed at the Project Site on Miller Road. Although the proposed basins will not exceed the 3 acre-ft volume limit that would trigger a dam safety permit, they will be registered with CT Dam Safety.

A HydroCAD model, using TR-55 methodology, was developed to evaluate the existing and proposed drainage conditions of the property. The results of the analysis demonstrate that there will not be an increase in peak stormwater runoff rates for the 2-, 25-, 50-, and

100-year storm events. Water quality treatment and stream channel protection of the project area is proposed to be handled in these permanent stormwater management basins.

3.4 Construction Schedule and Phasing

Project construction is anticipated to begin in Spring 2022 pending regulatory approvals and upon completion of agricultural activities for the season. Initial work will involve the installation of erosion control measures, including installation of sediment basins. A temporary staging area will be located in the field south of the project site at the end of the primary access drive.

Formal construction notice to proceed is anticipated in spring 2022, with delivery of equipment likely commencing in late spring 2022. As each discrete area of installation is completed, the ground surface will be stabilized, although best management practices will remain in place until final stabilization occurs.

Final installation of array equipment and landscaping/screening measures is anticipated in summer or fall of 2022. Final site stabilization, testing, and commissioning are expected to be completed in the late fall of 2022. Construction activities are expected to occur Monday through Saturday between the hours of 7:00 a.m. and 5:00 p.m. A draft construction schedule timeline is provided as Figure 8 – Construction Schedule.

The Construction Sequence for the Project begins by defining a weekly qualified inspector, emergency contact, and tentative schedule of all inspections, as well as holding a pre-construction meeting with representation from the general contractor, site contractor, CTDEEP, Town of East Windsor, the engineer of record, and the qualified inspector. The contractor shall contact Call-Before-You-Dig and notify the Town of East Windsor at least 48 hours prior to commencement of any construction activity. Upon achieving completion of construction and final site stabilization, the engineer of record will investigate the Site and all temporary erosion controls shall be removed.

Prior to construction, a health and safety plan will be finalized by contractor and will address not only the specific characteristics of the Project Site and the Project, but will reflect the nature of the surrounding land uses. A Storm Water Pollution Control Plan (SWPCP) will also be developed and implemented by the project civil engineer that will include regular inspection of erosion control measures to prevent sedimentation or water quality impact. The Stormwater Management Report (Appendix F) provides Erosion and Sedimentation Control Best Management Practices – Maintenance/Evaluation Checklists for Construction Practices and Long-Term Practices. Construction sequencing is described in detail on sheet C-5.0 in Appendix A.

3.5 Operation and Maintenance

Greenskies has a dedicated O&M team that currently monitors and maintains all operational assets in the Greenskies portfolio. This team will manage the efficient operation of the solar Project after it is turned on and the construction is complete. A team of individuals including system analysts and field operators will monitor the system 24 hours a day, 7 days a week. The operation center utilizes Also Energy's platform for site monitoring and generation reporting, along with a custom-built in-house platform designed for improved site analytics. Custom alarm management provides instantaneous notifications. System performance analytics are completed weekly to better understand the health of each asset, and find trends in under producing systems. See Appendix C – Operations & Maintenance Plan.

3.6 Decommissioning

This decommissioning plan has been developed to meet standard decommissioning requirements found in Jurisdictions in the Eastern US. At the end of the Project life, decommissioning will include disassembly and removal of above-ground structures, removal of subsurface structures to a minimum depth of 24 inches below grade, and re-grading and restoration of disturbed areas. Where reasonably required, restoration will include regrading, seeding, and mulching to establish vegetation and prevent soil loss and erosion.

Racking posts pulled from the ground are expected to create minimal ground disturbance. Any disturbed areas will be seeded with the same seed mix used across the site during the life of the Project or, if landowner prefers, another acceptable mix will be selected.

At the time of decommissioning, the Project owner will submit to the Town of East Windsor and the Connecticut Siting Council a request plan for continued beneficial use of any components to be left on site, including gravel roads, landscaping and/or visual screening and stormwater buffers.

Under the proposed decommissioning plan, the project owner shall be responsible for all decommissioning costs. Any additional permits or approvals required for decommissioning, removal, and legal disposal of Project components will be obtained before decommissioning activities begin. All activities will be conducted in accordance with all permits and applicable rules and regulations. Disposal of all solid and hazardous waste will be conducted in accordance with local, state, and federal waste disposal regulations.

Facility Materials/Equipment

PV facilities are constructed using the same basic materials and methods of installation common to their application. Materials include:

Metals: Steel from pier foundations, racking, conduits, electrical enclosures, fencing; aluminum from racking, module frames, electrical wire, and transformers; stainless steel from fasteners, electrical enclosures, and racking; copper from electrical wire, transformers, and inverters.

Concrete: Equipment pads and footings.

PV modules: PV Modules are typically constructed of glass front sheets (some use glass back sheets as well), plastic back sheets and laminates, semiconductor rigid silicon cells, internal electrical conductors (aluminum or copper), silver solder, plus a variety of micro

materials. The semiconductor PV cell materials represent a very small part of a PV module's weight, between 1 and 2%. As manufacturers pursue lower-cost modules, thinner layers of semiconductor materials are used which reduces this percentage. The most commonly used semiconductor material for the construction of PV modules is silicon. Glass, aluminum, and copper are easily recyclable materials, and silicon can be recycled by specialty electronics recyclers.

Glass: Most PV modules are approximately 80% glass by weight.

Plastics: A limited quantity of plastic materials are used in PV systems due to a system's continuous exposure to the elements and long operational lifetime. Plastics typically are found in PV facilities as wire insulation, electrical enclosures, control and monitoring equipment, and inverter components.

Sequence of Decommissioning

The following sequence for the removal of the components will be used:

PV Site:

- Disconnect PV facility from the utility power grid;
- Disconnect all aboveground wirings, cables and electrical interconnections and recycle offsite by an approved recycling facility;
- Remove concrete foundations. Electric components and their foundations will be removed and recycled off-site by a concrete recycler;
- Remove PV modules and transport to recycling facilities for recycling and material reuse;
- Remove the perimeter fence and recycle off-site by an approved metal recycler;
- Remove all waste.

Inverters/Transformers:

- Disconnect all electrical equipment;
- Remove all on site inverters, transformers, meters, fans, and other electrical components and recycle off-site by an approved recycler;
- Remove all waste.

Access Road:

- The access road built on the project, and associated drainage infrastructure will remain as a means to access the site in the future, if landowners choose to do so and are granted permission from the Siting Council and Town.

Below Ground Structure Decommissioning:

- Disconnect and remove all underground cables and transmission lines to a depth of 24” below grade and recycle off-site by an approved recycling facility;
- Removal of steel rack foundations.

Site Restoration:

- Seeding and mulching;
- Minor regrading.

4.0 Project Benefits and Needs

4.1 Project Benefits

4.1.1 Renewable Energy Benefits

In September of 2019, Governor Ned Lamont issued Executive Order No. 3, re-establishing the Governor’s Council on Climate Change (GC3) and committing Connecticut to a 45% reduction in Greenhouse Gas emissions below 2001 levels by 2030. The report called for evaluating current and locally-scaled scientific information and analysis of the effects of climate change. The GC3 council requested the preparation of the Phase 1 Report and adopted the recommendations presented in this report early this year. There is a “Progress on Mitigation Strategies” section of the GC3 council’s Phase 1 report. Recommendation 12# for electricity generation is *Achieve at least 66 percent zero-carbon electricity generation by 2030* through continued deployment of renewable energy sources and improved transmission and storage deployment, while creating green jobs to grow local economies.

The Project will provide a renewable energy source to be connected to Eversource Grid for additional generating capacity. This Project will assist in meeting energy demand and contribute to grid stability. Additionally, the Project contributes to meeting the State’s renewable energy goals described in <https://portal.ct.gov/DEEP/Climate-Change/GC3/Governors-Council-on-Climate-Change> and represents a 2021 State of Connecticut’s mitigation strategy described in “Taking Action on Climate Change and Building a More Resilient Connecticut for All” Phase 1 Report: Near-Term Actions dated January 2021 prepared for Governor’s Council on Climate Change. https://portal.ct.gov/media/DEEP/climatechange/GC3/GC3_Phase1_Report_Jan2021.pdf

4.1.2 Agricultural Co-Use

In conjunction with the solar arrays, the Project will also implement agricultural co-uses within the two Project fence lines. These co-uses are summarized below. To maintain the agricultural character of the area as well as preserve functioning farmland and prime farm

land soils, GCE has committed to incorporate agricultural co-uses within the two Project sites with the following features:

1) Sheep Grazing within the Miller Road Project Site

Sheep grazing on solar sites has been practiced throughout the United States and Europe for years without incident. Greenskies is a member of the American Solar Grazing Association (ASGA) and will identify sheep farmers in Connecticut willing to work on the Project Site. Greenskies and the selected sheep farmer develop a comprehensive grazing plan for implementation within the project fence line to replace the shade tobacco.

On the perimeter of the solar array, Greenskies also intends to incorporate a soil improvement plan into the project plans including natural pollinator habitat enhancement measures through use of a pollinator seed mix throughout the project sites. This will retain soil and prevent erosion, fix nitrogen, prevent soil compaction, and improve water infiltration of soils.

2) Vegetable Crop Production within the Wapping Road Project Site

Greenskies is proposing growing vegetable crops and has already started working with USDA NRCS Hartford County Conservation District to develop a vegetable crop production plan within the project fence line to replace the shade tobacco.

On the perimeter of the solar array, Greenskies also intends to incorporate a soil improvement plan into the project plans including natural pollinator habitat enhancement measures through use of a pollinator seed mix throughout the project sites. This will retain soil and prevent erosion, fix nitrogen, prevent soil compaction, and improve water infiltration of soils.

These agricultural co-uses are discussed in greater detail in Section 6.8.3 below.

4.2 Project Needs

Connecticut has committed to develop its renewable energy market and mitigate the negative environmental impacts associated with traditional electric power generation. In so doing, it has set aggressive targets to reduce Greenhouse gas (GHG) emissions and to increase the deployment of Class I renewable energy.

As the Council is well aware, the Governors Climate Change Council's recommendation is that the Connecticut's Renewable Portfolio Standard (RPS) reach a target of 40 percent Class I renewable energy sources by 2030, with an aim to reduce the carbon intensity of the RPS to achieve the State's decarbonization goals. Owners of renewable-electricity generation projects receive one renewable energy certificate (REC) for every megawatt-hour of renewable electricity they produce. Those RECs are traded in a regional market for state RPS compliance. Connecticut establishes required annual REC percentages from three classes of renewable energy resources.

Also included in the overarching GC3 recommendation is to continue to deploy at least 50 megawatts per year of larger distributed solar and 10 megawatts per year of distributed fuel cells. Since 2012, Connecticut utilities have been required to procure Class 1 RECs under 15-year contracts through an annual auction under the Low and Zero Emission Renewable Energy Credit (LREC/ZREC) Program. Given the program's success, Public Act 19-35 extended the program by \$8 million per year through 2021. The successor procurement begins in 2022, with 50 MW per year for ZREC resources and 10 MW per year for LREC resources. As mentioned above, a portion of the Project was successful in securing an LREC/ZREC contract at the end of 2020.

These policies significantly increase demand for new, zero-emitting renewables in the State. Development of the Project would not only help satisfy this demand, but would assist the State in meeting the requirements and Connecticut's RPS goals.

5.0 State and Local Outreach/Input

GCE has been in communication with and has engaged state and local regulators regarding the design and development of the project.

State Regulatory Agencies

On June 21, 2021, GCE had a pre-application meeting with CT DEEP's Stormwater Division. GCE received feedback from CT DEEP Stormwater staff: Karen Allen, Laura Gaughran, Neal Williams, and Chris Stone. GCE plans to submit its application for the General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities to CTDEEP shortly after submission of this Petition. A site walk will be scheduled at DEEP's discretion.

On July 1, 2021, GCE had a meeting with the CT DEEP Permit Concierge Office. The meeting included representatives from various DEEP departments, including: Natural Diversity Database Program, Stormwater Program, Dam Safety, Fisheries, Office of Planning and Program Development. CT DEEP Dam Safety commented that although the proposed basins on site do not exceed the 3 acre-ft volume limit that would trigger a dam safety permit, the basins would still need to be submitted to the Dam Safety Division for review. CT DEEP Stormwater Program had no further comments for the pending stormwater general permit registration. The Concierge Office mentioned that "the Project site is located on prime farmland, although no trees are being cleared. Since the proposal is for 5 MW AC, the Siting Council will require an approval letter from the Department of Agriculture and from Forestry Division." They noted that GCE has been in contact with the Department of Agriculture and Forestry Division.

As is discussed in greater detail in Section 6.8.3 below, GCE also had several interactions with the Connecticut Department of Agriculture. On July 13, 2021, GCE transmitted a letter to the Department outlining various agricultural co-uses that could be maintained at the Project Site. GCE and the Department of Agriculture (DoAG) met via Zoom on August 3, 2021 to discuss that letter. After the August 3rd meeting, GCE submitted additional detail to the Department on August 10, 2021, which articulated the specific

agricultural co-uses GCE would utilize at the Project Site. Since the submission of that August 10th letter, GCE's counsel, Pullman & Comley, has been in contact with representatives of the Department. Through those discussions, on August 18, 2021, the Department has indicated that if GCE undertakes the agricultural co-uses articulated in its August 10th letter, the Project as proposed would not have an adverse impact on prime farmland soils. The Project anticipates that the Department will send a letter to the Siting Council articulating this finding in the near future.

Local Officials

On July 15th, 2021, GCE met with the interim Town Planner, the Zoning Enforcement Officer/Inland Wetland Agent, and the Assessor to introduce the Project and answered general questions. There were no outstanding questions after the meeting. The Town Planner indicated that he would check Town files to assess if there were any approved subdivisions or resubdivisions abutting the two parcels to identify abutters that may have not been entered into the assessor's property records. On July 28, 2021, GCE gave a presentation to the Planning Zoning Commission during one of their regular meetings. The minutes of the July 28, 2021 meeting prepared by Town of East Windsor are presented in Appendix J.

In addition to outreach with local officials, GCE mailed informational letters with map showing the locations of the project sites to neighbors directly abutting the two project sites in July 2021. The purpose of the letter was to briefly introduce the Project and request feedback regarding the Project. In addition, the Project formally notified abutters and government officials about the Project on July 20, 2021. GCE will continue to offer an open line of communication with neighbors of the project. See Appendix K – Public Outreach Documentation.

6.0 Potential Environmental Effects/Impacts

6.1 Site/Community Setting and Scenic Character and Values

The Project Site consists of approximately 50 acres over two parcels and is located in the Broad Brook neighborhood of East Windsor. The Site and surrounding area consist of actively farmed fields and homes, with much of the now developed areas previously used as farm fields. The Mulnite family has owned and actively farmed land in this area, including the project site, since 1905. This 2021 growing season, shade tobacco has been planted by farms who are leasing both parcels, because the cash value of shade tobacco has recently increased on the commodity market. In the past, Leonard Mulnite has occasionally leased some of his property to farmers, however, nothing has been done on a consistent or long-term fashion. For agricultural use to continue within the leased area, GCE will undertake farming activities within the project boundaries and GCE does not expect there to be a reduction in acreage used for agricultural uses. See Section 6.6.3 for description of agricultural activities. In addition, outside the Project fence lines, a pollinator-friendly seed mix will be used on the perimeter of the two Project sites which will support native pollinators.

6.2 Public Health and Safety

The proposed Project is not expected to create any adverse impact with regard to public health or safety issues. The proposed Project will meet or exceed all local, state, national and industry health and safety standards and requirements. During construction and post-construction operations and maintenance, workers and personnel will follow all health and safety standards applicable to solar energy generating facilities.

A site-specific construction health and safety plan will be developed prior to initiation of any on-site Project-related tasks. During the construction phase of development, all contractors, sub-contractors and personnel will be appropriately trained and briefed on any potential site health and safety issues. There will be a designated construction manager and/or site safety officer or representative present at all times during

construction, and such individual will be responsible for overseeing/implementing the site construction health and safety plan.

Traffic relative to the Site includes standard construction trucks, small earth moving equipment, and all-terrain forklift equipment. Vehicle trips would be relative to scheduled deliveries of the major materials such as solar racking, solar panels, electrical equipment to serve the solar site, and fencing materials to be installed around the perimeter of the solar field. Construction activity and associated traffic will generally take place from 7:00 AM to 5:00 PM daily Monday through Fridays.

Environmental items considered “chemicals” that might be used on the site would include PVC glue for use with electrical conduit installations and carbon-based fuels for vehicles and equipment. It is anticipated that there will be less than one gallon of PVC glues and less than 25 gallons of fuel stored on-site. All flammable liquids will be kept in code compliant cabinets and containers. Spill kits will be in all vehicles and equipment on-site. Daily monitoring of chemical usage will be managed to ensure compliance to requirements. No risk of release to the environment is anticipated.

6.3 Noise

6.3.1 Noise Level Guidelines and Regulatory Requirements

Applicable regulations pertaining to potential Project-related noise are provided in Connecticut regulations for the Control of Noise established by CTDEEP at Conn. Gen. Stat. §22a-69 and the Town of East Windsor’s Nuisance Ordinance.

The local ordinance provides: “No person or property owner shall cause or allow the emission of excessive noise beyond the boundaries of his/her premises exceeding the noise levels stated herein and as applicable to Residential, Commercial, or Industrial zones.” The northern development area is zoned Residential, the southern development area is zoned Agricultural/Residential, and all surrounding zones are either Residential or Agricultural/Residential. Day-time hours are defined in local ordinance as the hours between 7 AM to 9 PM Monday-Saturday and 9 AM to 9 PM Sunday. Night-time hours

are defined in local ordinance as the hours between 9 PM to 7 AM Sunday-Saturday and 9 PM Saturday to 9 AM Sunday. The maximum allowable decibels (dBA) for Residential to Residential is 55 dBA day-time or 45 dBA night-time.

The CTDEEP regulations applicable to the proposed Project require the facility to meet the following sound levels: 61 dBA at the nearest residential property during the day (when the Project would be generating electricity); 51 dBA at the nearest residential property at night (when some accessory equipment might still be in operation); 66 dBA at the nearest commercial property; and 70 dBA at the nearest industrial property. The regulations also account for impulse and other types of noise. Construction noise is exempt from the regulations.

6.3.2 Proposed Project-generated Noise

Due to the nature of the use, facility design, required equipment and distance from potential noise receptors, the proposed Project is expected to have no adverse noise-related impact on the surrounding area. Existing uses around the perimeter of the Project site include: farming activities and single-family residential development.

The selected inverter has acoustic noise rating 55 dBA at 1 meter distance. All other selected system equipment will typically generate the same or lower levels of noise. Based on information provided by specified equipment manufacturers, the selected inverters for the proposed Project will typically generate less than 55 dBA at a distance of 1 meter, as noted in the inverter specification sheet provided in Appendix B.

The nearest residences are approximately 50 feet from the Project property line and approximately 240 feet from the closest on-site equipment location and pad. The nearest known commercial and/or industrial use is approximately 2,000 feet from the closest on-site equipment location and pad. Since sound dissipates with distance, it is not anticipated that any Project-generated noise will be detectable by potential residential, commercial and/or industrial receptors.

6.4 Air Quality

Due to the nature of the proposed Project as a solar energy generating facility, no air emissions will be generated during operations and, therefore, an air permit will not be required. Temporary, potential, construction-related mobile source emissions will include those associated with construction vehicles and equipment. Any potential air quality impacts related to construction activities can be considered *de minimis*. Such emissions will be mitigated using available measures including limiting idling times of equipment; proper maintenance of all vehicles and equipment and watering/spraying to minimize dust and particulate releases. In addition, all on-site and off-road equipment will meet the latest standards for diesel emissions, as prescribed by the United States Environmental Protection Agency (USEPA) and will consider reducing exhaust emissions by utilizing effective controls.

6.5 Visual Impact Assessment

Both the Wapping Road and Miller Road solar arrays proposed as part of this Project have been sited on land which is generally low visibility from surrounding roads, residences, and any designated public recreation area (i.e. playing fields, walking trails, or parks). Visual impacts of the Project from multiple directions are naturally mitigated due to a variety of distance, topography, and existing vegetation. Cross sections displaying the proposed Project elements in relation to four (4) different abutting parcels have been prepared in support of this Petition and are included in Appendix K. Discussions between the Petitioner and all abutting parcels to the Project are ongoing and it is the intent of the Petitioner to incorporate mitigation screening into the site development plan as needed at a later date, following further correspondence, to address screening deficiencies which may exist. The Petitioner intends to provide the Council any updates to visual impact studies or proposed mitigation screening plans.

6.6 Federal Aviation Administration Determination

Petitioner used the Federal Aviation Administration (“FAA”) Notice Criteria Tool to screen the project site to assess if the Project triggers the FAA Notice Criteria. The result of the initial screening on July 29, 2021, triggered that the Project would require

additional notice with the FAA. On July 30, 2021, GCE filed with FAA the project information and supporting documents for an aeronautical study to evaluate potential hazards to air navigation and conduct a plume analysis. On August 4, 2021 FAA assigned an aeronautical study number 2021-ANE-5055-OE. See Appendix L, FAA Determination.

Solar Glare Study

GCE conducted a glare analysis to determine whether any aircraft approaches to the strip would be affected by the Project using ForgeSolar modeling software. The glare analysis software predicted zero glare. See Appendix L, FAA Determination.

6.7 Environmental Site Assessment/Conditions

A site investigation by a Licensed Environmental Professional (LEP) from O'Reilly, Talbot & Okun Engineering Associates investigated the project area for potential signs of contamination in June 2019. A Phase I Environmental Site Assessment (ESA) was performed and a report summarizing the findings dated July 15, 2019 was prepared. The report generally concludes that there is a likely presence of pesticides, herbicides, and fertilizer in groundwater within the area of the Site given its nature of farming and recommends that any material intended to be exported from the Site be tested first. Dust suppression and anti-tracking pads shall be incorporated during construction. A copy of the Phase I ESA report is included in Appendix E.

6.8 Site Soils and Geology

6.8.1 Existing Site Soils and Geology

A review of available NRCS online soils mapping indicated the likely presence of a consistent Narragansett silt loam across the entire project area, with slopes ranging from 2 to 8%. Supplemental geotechnical investigations will be performed at the Site as early as feasible once the shade tobacco currently being grown is harvested. A desktop review of the soils information is included as Figure 15 and also incorporated into Appendix F. A

copy of the results of the field investigation will be provided to the Council upon completion.

6.8.2 Preservation of Prime Agricultural Soils

The Site is currently undeveloped farmland. A review of the USDA's soil mapping for the area indicates that the property in its entirety is prime farmland. During construction the layer of prime farmland soils will be carefully removed from the surface and carefully placed onsite. Upon the completion of earth movement, the prime farmland soils will be replenished back to the Site.

6.8.3 Agricultural Dual-Use

As noted above in Section 5.0, GCE and the Department of Agriculture have met and conferred regarding this Project and the agricultural co-uses developed for the Project. In developing the suggested co-uses, GCE contacted and conferred with several agricultural-related agencies, including, but not limited to the U.S. Department of Agriculture's Natural Resources Conservation Service (NRCS), the UConn Agricultural Extension Service, the Connecticut Agricultural Experiment Station and other entities. The Department has indicated to the Project team that these agricultural co-uses are appropriate for the Project, and that the Project may proceed with a Petition before the Siting Council. The Project anticipates that the Department will be issuing a letter to that effect to the Council shortly.

To maintain the agricultural use of the land, GCE has committed to incorporate an agricultural co-use within the two Project Sites. The Miller Road area will include rotational sheep grazing and the Wapping Road area will be a host to the growing and farming of vegetable crops. Below is a summary of background information and detailed plans for each use.

1) Sheep Grazing – Miller Road Parcel

- Sheep grazing on solar sites has been practiced throughout the United States and Europe for years without incident. For the Miller Road project site, Greenskies is proposing it would host the rotational grazing of sheep;
- GCE is a member of the American Solar Grazing Association (ASGA) and will identify sheep farmers in Connecticut that would be willing to work on the project and develop a comprehensive grazing plan for implementation;
- GCE would utilize a seed mix that would address the nutritional needs of sheep, provide a low-growing, easily maintained and sustainable vegetation solution for solar installations, and be pollinator friendly; and
- The area under the panels will be seeded with the Fuzz & Buzz, or equivalent, seed mix or an equivalent mix to accomplish goals of being valuable food source for sheep and pollinators, created by Ernst Pollinator Service and the ASGA. The diversity of grass and flowering species in the mix adds the ecological benefit of providing pollen and nectar sources for honeybees, native pollinator species, birds and other wildlife."
- The sheep would not have access to the entire facility footprint at a given time. They would be moved to different locations.
- GCE estimates roughly two to three sheep per acre would be on Site. The objective is to promote the health of the grazing sheep, control vegetation growth and satisfy the plans for agricultural co-use, not necessarily to maximize the number of sheep on Site.
- Manure management will be incorporated in the solar grazing plan of the contracted sheep herder for Project Site. The use of sheep at the Project site is to achieve vegetation management to operate the solar facility. The planned rotation of the sheep around the solar site has the underlying benefit of moving and distributing sheep manure at the same time. Sheep manure is typically small and pelletized. The manure will decompose through natural biological activity of the soil.
- The flock will not overwinter within the fenced area of the Project Sites.

- Fences will be used within the solar array and as a tool of water quality management to exclude sheep from accessing stormwater basins.

Proactive measures will be taken to ensure that all equipment on site is inaccessible to the sheep. All GCE employees or subcontractors that will perform routine maintenance on site will undergo training to ensure that routine maintenance and sheep grazing can occur alongside each other. The Site will be fenced in and signage will be placed throughout the Site to notify neighbors, farm workers, and other individuals that may be nearby that sheep are present onsite. In addition, the Project will be designed so that the solar arrays have a height that allow the sheep to pass underneath (the lowest edge of the panels will be at least two feet above the ground) and cables and trays will be secured such that these structures are inaccessible to the sheep.

In the event of a site emergency, GCE has an Emergency Response Plan in our Operations Maintenance Plan Appendix C. In addition, clear signage will be displayed at the main gate with emergency contact information of GCE Operations Maintenance staff would be contacted in the event town or state emergency personnel have to enter the site in order to ascertain if there are animals present, and to provide notification to the GCE Operations Maintenance Staff which would then notify contracted sheep herder that the animals may need to be removed.

The planned rotation of the flock during the grazing season, should maintain and improve soil health within the solar arrays. Well-managed grazing should lead to improved water filtration and reduced runoff potential.

For the perimeter of the solar arrays, Greenskies also intends to incorporate a soil improvement plan into the project plans including natural pollinator habitat enhancement measures through use of a native pollinator seed mix. This will retain soil and prevent erosion, fix nitrogen, prevent soil compaction, and improve water infiltration of soils.

2) Vegetable Crop Production – Wapping Road Parcel

- For the Wapping Road Project Site, Greenskies is proposing growing vegetable crops. Greenskies has started working with USDA NRCS Hartford County Conservation District to develop a vegetable crop production plan within the project fence line to replace the shade tobacco.
- Farming Marketing Campaign - GCE also plans to launch a marketing campaign to attract new or smaller growers/farmers to this project. There are numerous channels where GCE will post the availability of 3.92 acres in the one MW solar array on the Wapping Road parcel for several small growers to lease the parcel and grow crops. GCE and USDA NRC have preliminary identified the following resources:
 - The Knox Park Foundation: <https://www.knoxhartford.org/about-knox/staff/>
 - The Gifts of Love Incubator Program [Gifts of Love](#)
 - Creative Living Community of Connecticut <https://creativelivingcommunityofct.org/>
 - Common Ground High School (farm based public school) [Common Ground – High School, Urban Farm, and Environmental Education Center \(commongroundct.org\)](#)
 - CT Northeast Organic Farmers Association [CT NOFA – The Northeast Organic Farming Association of Connecticut](#)'s mission is to ensure the growth and viability of organic agriculture, organic food, and organic land care in Connecticut.
 - New Connecticut Farmer Alliance <https://www.newctfarmers.com/>
 - CT Farmlink Program to post the available farmland for leasing farmers
- When speaking with potential new farmers, GCE and USDA NRCS will focus on high value crops per square foot or cut and come again crops like herbs and cut flowers. Strawberries last for multiple years and are low growing.

- Pollinator habitat will be cultivated throughout the array area to aid in the stabilization and improvement of soil quality over time for future agricultural use.

Mulnite Farm will benefit from the lease payments it will receive for the use of its land, thereby being able to use that income stream to farm its other properties. Finally, it should be noted that the existence of the solar project protects farmland soils on site from more destructive and permanent types of development, such as residential subdivisions.

6.9 Historic and Archaeological Resources

A Phase 1A Cultural Resources Assessment Survey was prepared for the site dated July 2019. Generally, the report suggested that there were no listed historic registry places within one mile of the Site but summarized that the entire site contained a moderate sensitivity for archaeological resources and recommended that a Phase 1B study be performed within the limits of the Project. A Phase 1B shovel test will be performed as early as feasible following harvest of the shade tobacco. A copy of this report, and any associated consultation with SHPO, will be provided to the Council for reference. A copy of the Phase 1A report is included in Appendix G.

6.10 Wetlands and Watercourses

6.10.1 Wetlands Delineation and Methodology

Between July 24, 2019 and August 5, 2019, soil scientists from VHB investigated the farmed Site fronting on Rockville Road and Barber Hill Road in East Windsor to determine if regulated Inland Wetlands or Watercourses were present. In Connecticut, Inland Wetlands are defined by areas of poorly drained or very poorly drained soils or alluvial soils of any drainage class. The investigation was facilitated by the use of a tile spade and soil augers that were used to examine soil profiles and evaluate drainage

classes. A Wetlands Delineation Report dated August 13, 2019 was prepared outlining the survey process and findings. A copy of this report is included in Appendix H.

6.10.2 Existing Wetlands and Watercourses

One wetland was delineated in the extreme southern part of the property near Lindsay Lane. This wetland is within 100 feet of the proposed development area; however, it is upstream of the Project and no portions of the Project area discharge stormwater runoff towards it. No perennial or intermittent watercourses were identified on the Site.

6.10.3 Vernal Pools

Over the course of the Wetlands Delineation, the feasibility of potential vernal pools was searched for. No evidence of potential vernal pool habitat was located on the site or in close proximity to the Site which would necessitate further investigation during pool breeding season.

6.10.4 Proposed Project and Mitigation

The Project has been designed to provide a vegetated buffer between the development itself and any wetland systems or off-site areas to maintain an ecological edge zone that separates the solar development and stormwater features from the wetland communities. Wetlands and off-site areas will be further protected by incorporation of the stormwater management features that have been designed to mitigate peak runoff rates and treat water quality that is generated from the development area.

In concurrence with DEEP Stormwater General Permit, the minimum buffer proposed for any grading activities or infrastructure development is generally 50-feet from any wetland resource, and the minimum buffer proposed for any solar panels is generally 100-feet from any wetland resource. As mentioned above, solar panels will be installed within 100-feet of the on-site wetland; however, this wetland is upgradient of the Project and no portions of the Project area discharge stormwater runoff towards it. Under the

Stormwater General Permit, the Project must discharge stormwater runoff to a wetland for the buffer distances to be applicable.

6.11 Wildlife and Habitat

6.11.1 Rare, Threatened and Endangered Plants and Wildlife

A Request for Natural Diversity Data Base (NDDDB) State Listed Species Review was completed and distributed to DEEP Wildlife Division for review. Based on consultation from VHB dated August 26, 2020 which outlined rare species investigations at the project site, DEEP Wildlife Division stated that they do not anticipate negative impacts to any State-listed species and issued a Final Determination dated October 22, 2020. A copy of this letter is included in Appendix I.

6.11.2 Potential Impacts and Mitigation

The Final Determination provided by DEEP Wildlife Division states that it does not anticipate negative impacts to any State-listed species by the Project and accordingly, no seasonal clearing restrictions or conservation measures are proposed.

6.11.3 Core Forest

Review of CTDEEP Forestland Habitat Impact Map indicates that no known core forest exists at or in proximity to the Site and also, no tree clearing is proposed. Accordingly, it is the Petitioner's opinion that the Project will not alter areas of core forest. See Figure 11 – Core Forest.

6.12 Water Supply

No water for the construction of the facility will be sourced on site from either a well or utility hook up. All water used for construction will be trucked in. Minimal long-term water use will be required for operations for the purpose of cleaning modules and this water will also be trucked in.

6.13 Stormwater Management

6.13.1 Existing Conditions

The existing hydrology of the development areas consist of two major watersheds. Runoff from the northern development area flows overland to the north across an existing farm road towards an abutter's yard. That yard is improved with a culvert inlet which collects overland runoff and discharges it across Rockville Road towards Windsorville Pond. Runoff from the southern development area generally flows overland across the farm fields ultimately discharging from the site to the west/southwest towards neighboring properties. Information and computations regarding existing conditions hydrology is contained in the Stormwater Report. A copy is included in Appendix F.

6.13.2 Proposed Conditions

The proposed stormwater management system for the Project has been designed to meet State standards found within 2004 Connecticut Stormwater Quality Manual and CTDEEP Stormwater General Permit effective December 31, 2020. The system consists of four (4) proposed permanent stormwater management basins and accompanying drainage swales which have been strategically located throughout the Project site to maintain existing drainage patterns to off-site areas. In the majority of the on-Site areas, the Project proposes to install permanent turf-forming grasses to help stabilize the topsoil from erosion, sequester nutrients and pollutants, and lower runoff rates from the facility to the surrounding discharge points. The only impervious surfaces created by the Project will be a small amount of gravel access road and equipment pads.

Post construction stormwater runoff will be collected and conveyed to the stormwater basins via overland sheet flow and permanent diversion swales. Each pond will include an outlet control structure designed to mitigate peak stormwater flows to predevelopment levels. Water quality treatment and stream channel protection is provided in the basins and infiltration of stormwater runoff into the ground has been promoted to the maximum extents practicable. Information and computations regarding proposed conditions hydrology is contained in the Stormwater Report. A copy is included in Appendix F.

7.0 Conclusions

The Project clearly meets the standards set forth in CGS §16-50k(a). Specifically:

- The Project meets CT DEEP's air and water quality standards, with no material emissions associated with either construction or operation and water quality standards associated with construction and operational stormwater management a primary focus of the Project's design;
- The Project has been configured to avoid and minimize other environmental impacts by utilizing land which has been subject to former agricultural uses; and
- The Project will not alter areas of core forest, and the Petitioner will continue to coordinate with Department of Agriculture regarding impacts to prime farmland.

Given the benefits this Project will provide to the State of Connecticut, Greenskies Clean Energy respectfully requests that the Siting Council approve this Project as currently designed.