

VOLUME 1

Petition by GRE GACRUX LLC for a Declaratory Ruling, Pursuant to Connecticut General Statutes §4-176 and §16-50k, for the Proposed Construction, Maintenance and Operation of a 16.78 MW AC Ground-mounted Solar Photovoltaic Electric Generating Facility Located on Oil Mill Road in Watertown, Connecticut

**Prepared for
The Connecticut Siting Council**

June 19, 2018



TABLE OF CONTENTS FOR VOLUME 1

1.0	INTRODUCTION.....	2
2.0	PETITIONER.....	2
3.0	PROPOSED PROJECT.....	3
3.1	SITE SELECTION.....	4
3.2	PROJECT SITE DESCRIPTION.....	4
3.3	PROJECT DESCRIPTION.....	5
3.4	ELECTRICAL INTERCONNECTION.....	8
3.5	CONSTRUCTION SCHEDULE AND SEQUENCING.....	8
3.6	OPERATION AND MAINTENANCE.....	11
3.7	DECOMMISSIONING.....	12
4.0	PROJECT BENEFITS.....	12
5.0	STATE AND LOCAL INPUT AND OUTREACH.....	13
6.0	POTENTIAL ENVIRONMENTAL EFFECTS.....	14
7.0	CONCLUSION.....	23

APPENDICES

APPENDIX A	DECOMMISSIONING AND RESTORATION PLAN
APPENDIX B	EPA GREENHOUSE GAS EQUIVALENCY ANALYSIS
APPENDIX C	WETLAND AND BIOLOGICAL ASSESSMENT
APPENDIX D	PHASE IA CULTURAL RESOURCES ASSESSMENT
APPENDIX E	PRE-FILING NOTIFICATION OF PETITION

OTHER VOLUMES

VOLUME 2	PROJECT MAPS AND DRAWINGS
VOLUME 3	STORMWATER POLLUTION CONTROL PLAN (SWPCP)

1.0 Introduction

This is a Petition for a Certificate of Environmental Compatibility and Public Need (CECPN) for the construction, operation, and maintenance of the Waterford Renewable Energy project (the Project) proposed by GRE GACRUX LLC (the Petitioner; or GRE) in the Town of Waterford, Connecticut. The Project includes the development of a 16.78 megawatt (MW) alternating current (AC) ground-mounted solar photovoltaic (PV) system on one parcel of land in the Town of Waterford, Connecticut.

The Project is located within an approximately 152.23 acre property (the Project Site) located entirely within the Town of Waterford. Within the Project Site, approximately 100 acres have been identified as the location for the Project (the Project Area). There are several single-family residences located within 1,000 feet from the Project Area, located along Oil Mill Road, with the closest residences abutting the Project Area adjacent to the site entrance at Oil Mill Road. The majority of residences are farther away and have natural vegetative barriers that screen them from the project. The Town of Waterford has supported development of the Project in this location. The Project Site itself consists of a single parcel of land owned by Rosalie Irene Maguire and Todd Carl Willis, is located at 117 Oil Mill Road, and is currently zoned Rural Residential RU120. The Project's layout has been developed to minimize natural resource impact and carefully consider stormwater management both during and after construction. The characteristics of this type of solar facility minimizes the need for ground disturbance to the greatest extent feasible, avoids disruption of subsurface conditions, and allows for continued use of the Project Site as habitat for compatible species.

2.0 Petitioner

GRE GACRUX LLC a Connecticut limited liability company, as Petitioner, proposes to develop, engineer, procure and construct ("EPC") and own a Class I renewable energy resource (as defined by Section 16-1 (a) (20) of the Connecticut General Statutes) . GRE GACRUX LLC is the developing Single Purpose Entity ("SPE") which will own the Project, while Greenskies a Clean Focus company, an affiliated entity and experienced Connecticut-based solar company, is the EPC partner.

The Clean Focus group of companies originates, develops, finances, constructs, owns, and operates renewable-energy projects in the United States, Taiwan, and China. Clean Focus Yield owns and operates clean, renewable-energy projects in commercial, industrial, small-utility, and community solar. Our projects pass strict technical and credit criteria to ensure steady cash flows and attractive dividends for our investors.

Founded in 2008, Greenskies, a Clean Focus company, is a privately held Connecticut-based solar developer and integrator that specializes in system design, financing, project implementation, and operation and maintenance. To date, the company has over 170 MW of solar assets in operation across 19 states: AZ, CA, CO, CT, FL, MA, MD, MI, MN, NH, NJ, NV, NY, OR, PA, RI, SC, TX, WI. Greenskies' pipeline for 2018, much of which is already under contract or starting construction, is expected to grow to 280 MW by early 2019.

Greenskies develops, builds, owns and operates solar PV projects for highly-rated commercial and municipal entities throughout the Country. While most of its competitors have a broad approach, which includes residential and utility-scale projects, Greenskies' unwavering focus on the municipal and commercial market has led to an unparalleled level of expertise. This allows the company to execute in the most cost-effective manner while maintaining the highest level of quality, and its highly-skilled team is able to provide its clients with custom-tailored solar services specifically designed to meet their needs.

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 brings years of industry knowledge and expertise at every level. Moreover, with hands-on management of on-site performance, both during construction and operation and maintenance, and sophisticated reporting processes in place, the company is able to ensure safety, quality control and optimal electrical generation throughout the life of each project.

Greenskies is headquartered in both Sunnyvale, California and Middletown, Connecticut with a business development team (remote) in Boston & Minnesota and a Project development team in Louisville, Colorado. Our team's experience working in the locations of potential project sites will allow our company to closely monitor all aspects of construction through completion, and respond quickly when necessary.

Correspondence and communications regarding this petition should be addressed to both of the following individuals.

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3.0 PROPOSED PROJECT

The following sections provide details regarding Project Site selection; a description of the Project Site property and ownership; a description of Project features; plans for electrical interconnection; construction schedule and sequencing; operational and maintenance (O&M) information; and a decommissioning plan.

The proposed project includes the development, studies, design, construction, and operation of the solar PV energy generating facility. The PV project will interconnect with Eversource's existing power grid. The energy produced will all be sent into the grid and purchased by both Eversource and United Illuminating, Inc. All design for this project will be completed by BL Companies, Inc. with state licensed professional engineers. The design includes electrical, civil, structural and storm water aspects. Construction will take place over an approximately twelve month period.

3.1 SITE SELECTION

The Waterford Project site was carefully selected by Greenskies to not only be suitable for a solar PV project but to also have minimal natural resource impacts, to not have adverse effects on quality forest land, and not diminish the quality of life of those who live in the vicinity. It is also important 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 researching 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 our opinion that the social and environmental impacts of this project site are a net positive.

3.2 PROJECT SITE DESCRIPTION

The Waterford PV project is sited on a 152.23 acre area comprised of a single parcel in Waterford; Map #80 Lot #5497. The site is accessed from and is due east of Oil Mill Road, and north of Interstate 95. The parcel is currently zoned Rural Residential RU120 and is boarded to the east and south by parcels located in the General Industrial I-G zone. The parcel is bisected by a 125-ft wide Connecticut Light & Power overhead electric transmission right-of-way, that crosses the project site along a southwest-northeast axis. The parcel is characterized by a combination of low lying wetland areas and uplands consisting of forested hills and steep slopes.

There are multiple independent wetlands and watercourses, and three identified vernal pools that are completely avoided by the solar project.

Studies have been completed to understand the likelihood of historical significance on the site.. More details on historical and environmental studies are provided later in the report.

The site is zoned Rural Residential RU120. The Town of Waterford zoning ordinances are silent with respect to the use of solar photovoltaic panels as a use in a residential zone. Surrounding the site are multiple use groups. Also located within the RU120 zone to the west are single family residential properties along Oil Mill Road, and Interstate 395 further west. Multifamily residential property is located to the north of the project site. Directly east, and south of the project site are a combination of commercial uses located within the adjoining I-G General Industrial zone. Access to the project site is via an existing dirt road extending eastward from Oil Mill Road, and located along the northwest corner of the site.

Greenskies has full control of the parcel via a 20 year lease with the property owner. Greenskies can also extend the lease by an additional 20 years if needed. The land owner is also in support of the project site being developed for this solar project.



Figure 1 – Overall Project site layout

3.3 PROJECT DESCRIPTION

As depicted above in Figure 1, the subject property is located at 117 Oil Mill Road, Waterford, CT and comprised of one tax parcels containing approximately 152.23 acres +/- of undeveloped

land. The site is located in the western portion of Waterford, between Interstate 395 and 95, and is greater than 2,500 feet from the neighboring Town of East Lyme. A Vicinity Map depicting the project surroundings can be found on the cover of Volume 2 of this Petition, which contains the maps and drawings for the Project.

The property is located within the RU120 Rural Residence Zoning District and is bordered to the west by single-family residential properties along Oil Mill Road and multifamily property to the north. Further north along Route 85, and east along Cross Street, the site is adjacent to a mix of commercial uses located in the I-G General Industrial Zone, including UPS, Dunkin Donuts, Lumber Liquidators, Seconn Fabrication, a surgery center, Waterford Gymnastics, Airgas, an animal hospital, dentist, and a Suzuki Motorsport dealer. Also located on the east side of Cross Street, is a BJ's Wholesale Club and a multiplex cinema. To the south the site is bordered by additional commercial uses located within the I-G General Industrial Zone, including Rodeway Inn, and Sonalysts Studios.

The subject property is currently wooded and undeveloped. The parcel is bisected by a 125-ft wide Connecticut Light & Power overhead electric transmission right-of-way, that crosses the project site along a southwest-northeast axis. A review of aerial photographs found online at the UCONN Map and Geographic Information Center website indicates that the property has been forested since at least the 1930's.

In general, the topography of the land varies between low wetland and watercourse areas, and steeper hilly areas, with elevations ranging from 92 feet to 254 feet. Four distinct designated inland wetland areas were identified on site. The first wetland is identified at the head of a small tributary of Oil Mill Brook, located at the northwest corner of the property and consists of the largest wetland area, totaling 11.56 acres. The second and third wetland areas, totaling 1.39 acres is located along the northwestern property line, adjacent to Oil Mill Brook. And the fourth wetland area is approximately 0.14 acres and is located at the center of the eastern property line.

The subject property is located within the Southeast Coast Major Basin, the Southeast Western Complex, and Niantic River Drainage Basin. Approximately 80% of the project site is tributary to Oil Mill Brook, and the remaining 20% is tributary to Stony Brook along the eastern edge of the property. Both brooks ultimately discharge into the Niantic River, and Long Island Sound.

The project site is located outside of the coastal boundary according to the CTDEEP Coastal Boundary map for Waterford, CT.

3.3.1 Panel Arrays

The photovoltaic arrays are anticipated to be comprised of 370-watt panels arranged two-high in portrait set at an optimal angle to balance the solar yield with the area of available areas within the property. The panels will be mounted on proprietary steel racking with either concrete ballast or 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.

3.3.2 String Inverter Configuration

The arrays are anticipated to be electrically orientated in direct-current strings of 18 panels, which will be combined with adjacent circuits for a total of 11 or 12 circuits into 60-to-65 kilowatt string inverters mounted throughout the array racking. The power from these inverters will be directed to various customer-owned transformer sections throughout the site, which will modify the voltage to enable the distances of the conduit runs.

3.3.3 Site Access and Laydown Areas

The primary and sole site access point to the project site is proposed to be via an unpaved full-service access driveway from Oil Mill Road, which is a paved local road, at the northwestern end of the site. There is currently an existing dirt road access drive extending from the east side of Oil Mill Road that provides site access.

A paved driveway apron is proposed to be constructed at the site driveway location within the right-of-way in accordance with local standards.

Approximately 13,500 LF of 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.

Laydown areas are proposed for each phase of construction. A total of 13 construction phases are proposed. Each phase corresponds to the construction of a sediment basin, that will be converted into a detention basin to manage post-construction stormwater runoff. Sedimentation and Erosion Control Plans have been developed in compliance with the Connecticut Guidelines for Soil Erosion and Sediment Control.

3.3.4 Stormwater Management

A Stormwater Pollution Control Plan has been prepared in accordance with the 2004 State of Connecticut Stormwater Quality Manual and the CTDOT Stormwater Drainage Manual. A copy of this Report is included as Volume 3 to this Petition As indicated in Volume 3, pre-development drainage patterns have been maintained to the greatest extent feasible in an effort to maintain pre-development flows to existing wetland and watercourse areas.

A total of 13 detention basins have been designed and are strategically located throughout the project site to mimic existing runoff collection areas that convey runoff to adjacent wetlands and watercourses. All ponds have designed at a minimum distance of 100-ft from delineated wetlands and watercourses, and in sensitive area will discharge stormwater via a level spreader to mimic a sheet flow condition, and avoid point discharge.

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-,10-, 25-, and 100-year storm events.

3.3.5 Fencing

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 address NEC code requirements. The perimeter fencing will extend approximately 14,500 linear feet around the array and will provide a 6-inch gap between the bottom of the fence and existing ground, to allow small wildlife animals to traverse the site if recommended by the pending wildlife studies. An access gate, with locking hardware, is proposed at the primary site access drive and at key entry points to the arrays.

3.3.6 Construction Workspace, Clearing and Restoration

Since the existing land use of the project site is forested, significant clearing within the boundary of the site perimeter fence and the limits of disturbance will be required. Clearing is required to provide for construction of the arrays, detention ponds, access road grading and to reduce shading of the solar arrays. The Owner of the property has already undertaken selective clearing of the project site. Approximately 90 acres of the project site will be cleared for the development

No tree clearing will take place within 100-ft of designated inland wetlands and watercourses, with the exception of minor selective clearing in locations where the existing dirt access road will be improved.

Restoration of the site within the limits of disturbance is proposed to include new low-maintenance ground cover within the solar array field and adjacent to the perimeter fencing. Establishing vegetative cover will help to stabilize the soil and reduce stormwater runoff. Areas between the perimeter fence and the 100-ft wetland setback line will receive a mix of native low-lying plants, shrubs, and groundcover.

3.4 ELECTRICAL INTERCONNECTION

The photovoltaic array is being proposed to interconnect with the utility substation at the intersection of Oil Mill Road and Waterford Parkway North, which will require the creation of an electrical service for the Site, as well as the addition of utility runs from the substation to the site entrance, which is approximately 3400 feet along Oil Mill Road. An Interconnection Application has been submitted to Eversource, which is currently in the process of preparing a System Impact Study and Transmission Study to confirm our proposed interconnection location, as well as to provide recommendations for our proposed electrical equipment.

3.5 CONSTRUCTION SCHEDULE AND SEQUENCING

Project construction is anticipated to begin in Spring 2019 pending regulatory approvals. Initial work will involve site clearing and the installation of erosion control measures, including installation of sediment basins. Installation of additional erosion control and species protection measures (if warranted) will follow. Formal construction notice to proceed is anticipated in Spring 2019, with delivery of equipment likely commencing in late Spring 2019. 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.

Land preparation and site work is anticipated to continue through the end of fall 2019, with the final installation of array equipment in fall of 2019. Final site stabilization, testing, and commissioning are expected to be completed in the late Fall of 2019. Construction activities are expected to occur Monday through Saturday between the hours of 7:00 a.m. and 9:00 p.m. A construction schedule timeline is provided as Figure 2 on the next page.

Prior to construction, a health and safety plan will be finalized that 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 that will include regular inspection of erosion control measures to prevent sedimentation or water quality impact (see Volume 3).

3.6 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 Waterford solar project after it is turned on and the construction team 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

GRE Field Operations

Each O&M field team consists of a certified electrician and a solar technician. GRE field crews will perform two Preventative Maintenance site visits each year. Having crews structured by region allows for a quicker response time to corrective maintenance tasks. GRE field crews utilize the most advanced technology for PV testing and diagnostics of site issues.

Greenskies utilizes a semi-annual scheduled maintenance plan to identify and correct any issues that have or have the potential of arising on its operating assets. Reports are generated after each visit and performance data is analyzed and saved so that historical data can be used to track module performance vs. warranted output.

When a system is not producing or is under producing the Data Acquisition System will create an alarm. Once an alarm is created the production analyst will analyze the data. Subsequently, O&M trucks are dispatched to investigate and correct any issues. Greenskies O&M has a close working relationship with our major system component manufacturers, including modules, racking and electrical components/enclosures. We are able to perform warranty work with our in house technicians. We have centrally located warehouses which store spare modules, inverters, wire and other components that can be used for on-site replacements. Automated dispatch to projects dependent on generation loss and location make the solar technicians more efficient in correcting site issues.

GRE will not routinely remove snow from the solar project. In extreme events snow removal is a possibility but is a last resort. Module washing is performed on both a scheduled basis as well as a corrective measure if there is a major soiling event. The monitoring platform is used as a tool at the beginning of system operation to determine a soiling baseline as well as profile that determines how often washing of the modules will be required and scheduled.

Reports

Reports are used to track reoccurring issues. This helps Greenskies identify any design improvements that may prevent such issues in the future. GRE can then use this information to better understand regional trends and predict future issues. Maintenance reports are created after every maintenance visit.

3.7 DECOMMISSIONING

The Project is proposed with at least a 35 year design life. At the end of the Project's design life, all equipment, including racking systems, panels, inverters, ballast foundations, and electrical collection systems, will be removed in accordance with the Project's Decommissioning and Restoration Plan (included as Appendix A). The Project will decommission all above-grade facilities and foundations and restore the surface to a condition similar to that as it existed at the inception of the Project, as well as repair any damage to the Project site as a result of removing the improvements. It is anticipated that the salvage value of the equipment would fully offset the cost of decommissioning and restoration

4.0 PROJECT BENEFITS

The Project will provide the state's electrical system with additional generating capacity that will meet demand using renewable energy, contribute to grid stability, and foster the redevelopment and reuse of underutilized industrial property. The Project was selected as part of the Department of Energy and Environmental Protection's Clean Energy RFP and was found to be consistent with Connecticut's 2013 Comprehensive Energy Strategy (CES). This version of the CES, along with the most recent version of the CES, sets forth clear goals for increasing the use of renewable energy as a part of the state's power generation portfolio:

The Global Warming Solutions Act (Connecticut Public Act 08-98) sets a goal of reducing greenhouse gas emissions by 80% by 2050. Connecticut's Renewable Portfolio Standard (RPS) requires that 20% of generation serving state customers be from renewables by 2020. Meeting the 2020 RPS goal will require the development of 6,196 gigawatt-hours, or nearly 3 gigawatts of low-carbon supply – more than 25 times the amount of power generated by Class I resources (i.e., solar power, wind power, and fuel cells) within Connecticut in 2011.¹

As part of the Clean Energy RFP, Greenskies was required to demonstrate the Project's consistency with the policy goals outlined in the 2013 CES, including, but not limited to: promotion of wind, solar and other renewables and low carbon energy technologies.² The Project will provide clean, renewable solar-powered electricity that will support achieving the state's legislatively mandated obligations under the RPS, as well as its other energy policies, including the goal to "develop and utilize renewable energy resources, such as solar and wind energy, to the maximum practical extent."³ The construction of the Project becomes even more important in light of the 2018 CES's aspirations for even greater greenhouse gas emission reductions through the promotion of grid-scale renewable energy.

Selection of this Project for a PPA under the Clean Energy RFP process affirms the Project's consistency with the state's energy plans and objectives. In addition to the direct contribution the Project will make to increase the use of renewable energy, additional reduction of greenhouse gases and criteria air emissions will be associated with the displacement of older, less efficient fossil fuel generation.

¹ 2013 CES, at 76 (footnotes omitted).

² Clean Energy RFP, at 31.

³ CGS §16a-35k.

As reflected in the EPA Greenhouse Gas Equivalency Analysis presented in Appendix B, the Project provides an important contribution in the shift toward carbon-reduction strategies.

The Project anticipates using local and regional labor, as practical, for construction, and will be a source of both direct and indirect revenue contribution and job creation to the local community. Further, the operations and maintenance of the Project will be addressed by Greenskies, a Connecticut business located in Middletown.

5.0 STATE AND LOCAL INPUT AND OUTREACH

Representatives of the Project met with Waterford First Selectman Daniel Steward, Director of Public Works Brian Long, Director of Economic Development Abby Piersall and Environmental Planner Maureen Fitzgerald on April 26, 2018 to discuss the project. At that time, Project representatives discussed how the site was selected, the Project's role in the State RFP process, the preliminary design of the Project and the anticipated tax implications from the construction of the project.

Project representatives discussed the fact that the current owner of the property is harvesting the trees that are located on the property, and has been for some time. All of the town officials were already aware of the tree harvest being conducted by the site's current owner. According to the Town's officials, the owner received permitting for the harvest in January of 2018.

Project representatives also discussed the fact that this site was one of three sites in Waterford that Greenskies was prepared to submit into the state's RFP process. In developing this project, the original plan was to use the Town's landfill as the site for the solar project. Project representatives had a very detailed conversation with the Town approximately two years ago regarding this alternative. Unfortunately, because complete site control was needed due to the RFP's requirements, the Town and the Project were unable to come to terms on how such site control would be achieved in a timeframe that would allow the Project to participate in the RFP process.

The Project team also examined the Town's old airport site as a potential site for a solar photovoltaic facility. The Project team attempted to negotiate a fair purchase price for the property. Unfortunately, however, the owner of that parcel was seeking a price that was several million dollars in excess of the property's fair market value. Moreover, the distance from the Waterford Airport to the interconnection point (Oil Mill Substation) is approximately two miles away. Such a distance would have severely impacted the cost of interconnection.

After the Project team completed its discussion of the various alternatives that had been considered, the meeting concluded. At the conclusion of the April meeting, the Town's representatives asked for the following items; 1.) a site visit of the solar project located East Lyme, Connecticut that was constructed by a different Greenskies subsidiary; 2.) a copy of the Project's completed engineered drawings prior to submittal to the Siting Council; and 3.) an opportunity to participate in any site walks that will take place as part of the Siting Council process.

Two of these requests have been addressed. On June 14, 2018, members of the Project team took representatives of the Town to the East Lyme project so that the Town's representatives

could see a working solar facility. The construction of that site was discussed, including the steps the Project is willing to undertake to ensure that there will not be stormwater issues associated with the construction of the Watertown project. Copies of the completed drawings were also provided to the Town's representatives on June 14, 2018. The remaining issue, participation in any walks of the site during the pendency of this Petition, will obviously be addressed by the Council during the course of this Petition.

6.0 POTENTIAL ENVIRONMENTAL EFFECTS

6.1 Site and Community Setting

The site totals approximately 152.23 acres and lies on the east side of Oil Mill Road in the westerly portion of Waterford between Interstate 395 and 95. The site is currently forested and undeveloped. A review of the USDA's soil mapping for the area indicates that the property does not contain any prime farmland.

The site has been forested since at least the 1930s⁴. An existing dirt road extending from Oil Mill Road provides access to the site. The parcel is bisected by a 125-ft wide Connecticut Light & Power overhead electric transmission right-of-way, that crosses the project site along a southwest-northeast axis

Physiography

The site lies in the Southeast Hills ecoregion, which consists of "coastal uplands, lying within 25 miles of Long Island Sound, characterized by low, rolling to locally rugged hills of moderate elevation, broad areas of upland, and local areas of steep and rugged topography" (Dowhan and Craig 1976).

Bedrock and Surficial Geology

The bedrock of the region is composed of schists, and gneisses deposited during the Paleozoic. Soils in the region have developed on top of glacial till in upland locales, and on top of stratified deposits of sand, gravel, and silt in the local valleys and upland areas (Dowhan and Craig 1976).

The most ubiquitous soil types found within the region and which cover the majority of the study area include Canton and Charlton, Charlton-Chatfield, Hollis-Chatfield, and Paxton and Montauk soils.

Canton and Charlton soils consist of very deep, well drained soils formed in loamy melt-out till. They are nearly level to very steep soils on moraines, hills, and ridges. Charlton-Chatfield series consists of well drained soils formed in loamy melt-out till. They are moderately deep to bedrock. They are nearly level to very steep soils on bedrock-controlled hills and ridges. The Hollis series consists of well drained and somewhat excessively drained soils formed in a thin mantle of till. They are shallow to bedrock. They are nearly level to very steep upland soils on bedrock-controlled hills and ridges. The Paxton series consists of well drained loamy soils formed in lodgment till. The soils are very deep to bedrock and moderately deep to a densic contact. They are nearly level to steep soils on hills, drumlins, till plains, and ground moraines.

⁴ A review of 1934 aerial photography shows the site was forested at that time.

The depth to bedrock was variable throughout the site. Probable bedrock was typically encountered at depths of about 10 to 20 feet below ground surface. In some cases, completely weathered bedrock was encountered at a depth as shallow as 3.5 feet and competent bedrock at a depth of 10 feet below the weathered bedrock.

Wetland Soil Types

Wetland soils are described in the Wetlands and Watercourses Delineation Report, which is contained in the Wetland and Biological Assessment, prepared by Davison Environmental, on June 6, 2018 (“the Davison Environmental Report”), a copy of which is attached as Appendix C. In general, wetland soils on the site consist of the Ridgebury, Leicester and Whitman complex as well as Raypol soils.

Non-wetland Soil Types

The non-wetland soils were not examined in detail, except as was necessary to determine the wetland boundary. Non-wetland soils are described in the Wetlands and Watercourses Delineation Report which contained in the Davison Environmental Report. In general, non-wetland soils consist of the Agawam series, the Ninigret and Tisbury complex, the Charlton-Chatfield complex, the Canton and Charlton complex, the Paxton and Montauk complex and the Hollis-Chatfield-rock outcrop complex.

6.1.1 Existing Project Site Land Use

The existing project site land use is undeveloped forest with the exception of the existing 125-ft wide CL&P overhead electric transmission right-of-way that bisects the site. The project site lies within the Rural Residential RU120 zoning district.

6.1.2 Existing Surrounding Land Use

The existing surrounding land uses consist of single-family residential properties to the west, and multifamily residential to the north, located within the Rural Residential RU120 zoning district. The I-G General Industrial zoning district abuts the site to the east and south. Existing land uses abutting the site to the east include a mix of commercial uses consisting of UPS, Dunkin Donuts, Lumber Liquidators, Seconn Fabrication, a surgery center, Waterford Gymnastics, Airgas, an animal hospital, dentist, and a Suzuki Motorsport dealer. Also located on the east side of Cross Street, is a BJ’s Wholesale Club and a multiplex cinema. To the south, the site is bordered by additional commercial uses located within the I-G General Industrial Zone, including Rodeway Inn, and Sonalysts Studios.

6.2 Public Health and Safety

The Project will meet or exceed applicable industry, state, and local codes and standards. All applicable health and safety requirements relevant to solar energy generating facilities will be followed during construction and operation, and the Project will not pose any safety concerns or hazards to the general public. The Project will not consume any raw materials, will not produce any by-products, and will be unstaffed during normal operating conditions.

During Project construction, construction contractors and employees will receive general and Project-specific health and safety training. Training will include review of state and local health and safety requirements; location and routes to nearby emergency care facilities; analyses of

risks and procedures to mitigate any exposures; stop work triggers; and communication protocols for reporting health and safety issues. All construction workers will comply with required health and safety controls and will understand and observe the health and safety plan developed for the Project Site. Any and all unsafe conditions will be reported to the construction manager.

The Project is anticipated to have limited impact on traffic flow; however, the Project will coordinate with local authorities to minimize potential impacts of Project-related construction on existing traffic patterns and roadways. The location of the Project Site immediately proximate to major highways, including access from Interstate 95 and Interstate 395, will minimize effect on local roadways. Construction vehicles are anticipated to use the Interstates for access to the Project Site during the Project's construction period. Once operational, the Project will be generally unstaffed and only occasional vehicle trips to the Project Area will occur for routine maintenance activities. No raw or hazardous materials or fuels will be delivered to or stored at the Project Area. The Project will be secured by a 7-foot high fence, consistent with applicable codes.

The Project will be screened from much of the surrounding area due to existing development, topography, and intervening vegetation. The solar modules are designed to absorb incoming solar radiation and minimize light reflected off the panels, with only a small percentage of incidental light reflected off the surface of the panels. The panels will be tilted toward the southern sky at an approximate angle of 25 degrees. The incidental light reflected off the panels will be significantly less than light reflected off of common building materials or the surface of undisturbed water; therefore, reflected light is not anticipated to impact public health and safety.

Before Project operation commences, GRE will meet with local first responders to supply information on responding to emergencies at solar facilities. A tour of the Project will be provided and the clearly marked disconnect switches will be identified for use during an emergency. The system will be remotely monitored through a data acquisition system, allowing for remote shutdown of the Project in the event of a fault or other power outage event. Emergency vehicles and service equipment will be provided adequate access to the Project Area via the Project's access roads.

6.3 Noise

The Project, which is located in a residential zone (Class A) surrounded to the north and west by residential properties (Class A) and to the east and south by industrial properties (Class C), is anticipated to be a low source of noise. The ambient noise associated with the roadway traffic is considered to be greater than that generated by this Project.

6.3.1 Noise Level Requirements and Guidelines

Connecticut regulations for the control of noise have been established by CTDEEP at section 22a-69 and Chapter 9.06 of the Town of Waterford Code of Ordinances contain guidance pertaining to noise that apply to the Project. The local ordinance is generally consistent with

CTDEEP noise regulations. The CTDEEP noise limits, which are prescribed according to land use, are shown in Table 1.

The regulations also prescribe provisions for impulse noise, not allowing impulse noise in excess of 80 decibels (dB) (peak) during nighttime hours in any Class A zone and not allowing impulse noise in excess 100 dB (peak) at any time to any zone. A limit of 100 dB pertains to infrasonic and ultrasonic noise. Construction noise is exempt from the CTDEEP noise regulations.

Table 1. CTDEEP Noise Limits

Emitter	Receptor (dBA ^a)			
	Class C	Class B	Class A Daytime (7:00 am – 10:00 pm)	Class A Nighttime (10:00 pm – 7:00 am)
Class C – Industrial	70	66	61	51
Class B – Commercial and Retail Trade	62	62	55	45
Class A – Residential Areas and Other Sensitive Areas	62	55	55	45

^a A-weighted decibels.

The Town of Waterford provides noise level standards applicable to the Project under Chapter 9.06 of the Code of Ordinances. The Town noise-level standards are consistent with those prescribed by the CTDEEP, although the definitions of daytime and nighttime are different. The Town of Waterford considers daytime to be 7:00 am to 9:00 pm for Monday through Saturday and 9:00 am to 9:00 pm for Sunday, and nighttime to be 9:00 pm to 7:00 am for Sunday through Friday and 9:00 pm to 9:00 am for Saturday to Sunday morning.

As noted in Table 1, the Project is required to meet sound levels of 62 dBA at the nearest industrial property, 55 dBA at the nearest commercial property, levels of 55 dBA at the nearest residential property during the day (when electricity would be generated by the Project), and 45 dBA at the nearest residential property at night (when certain ancillary equipment may still be operating). The closest industrial or commercial property boundary is over 2500 feet from the Project Area, while the nearest residential properties are adjacent to the west.

6.3.2 Acoustic Modeling Methodology and Inputs

A preliminary assessment of the potential noise generated by the Project has been performed, based on published sound levels from the electrical equipment being proposed. The solar inverters, with the closest being approximately 100 feet from any adjacent property limit, yield a sound pressure level of 55dBA at 3 meters. The transformers, with the closest being approximately 230 feet from the residential properties on Oil Mill Road, yield a sound pressure level of 62dBA.

6.3.3 Noise Prediction Model Results

Sound pressure levels (dBA) were evaluated, and are expected to produce noise levels below 40 dBA, which is well below the criteria limits described above. Table 2 shows the projected exterior sound levels resulting at sensitive receptor locations along the property boundary lines. At the selected residential receptors the noise levels range from 34 dBA to 35 dBA, which reflect compliance with the nighttime 45 dBA standard, and sound levels that are unlikely to be perceptible within the existing setting. Therefore, noise modeling results demonstrate that the Project will operate in compliance well within the applicable noise requirements.

Table 2. Acoustic Modeling Results Summary

Receptor Number	Location Description	Threshold Limit, dBA	Project Sound Level, dBA
1	Northern Residential Properties	45 (night)	35
2	Eastern Industrial Properties	51 (night)	34
3	Western Residential Properties	45 (night)	34
4	Southern Industrial Properties	51 (night)	34

6.4 Air Quality

The proposed Project is a solar PV energy generating facility, and, therefore, will generate no direct air emissions during operation and will not require an air permit. As mentioned above, an EPA GHG Equivalency Analysis was completed for the electric generation the Project will produce. A copy of this analysis is attached as Appendix B. As outlined in Appendix B, the Project will result the equivalent of reducing 22,452 metric tons of carbon dioxide (CO₂) equivalent emissions based on the generation of 30,168 MW-hours of electricity during the first year of operation. This reduction is equivalent to removing gas emissions by 4,808 passenger vehicles driven for one year.

During construction, potential air emissions will include those from construction vehicles and construction activities. These air emissions will be temporary. As a result, any potential air quality effects associated with Project construction activities will be negligible in comparison to the emissions avoided, and should not exceed thresholds requiring an air permit.

6.5 Scenic Values and Visibility

The location of the Project site is extremely remote, as can be seen by the photographs on the next two pages. The Project will be set away from nearby roads and because of the existing topography and trees that will not be altered by the Project, the solar array will have very limited visibility by the public. Please see below images of depicting the landscape of the area and the access road for the Project.



Figure 3 - Overhead view of the Project site



Figure 4 - Area of Project site immediately adjacent to access road



Figure5 - Access road onto Project site

6.6 Historic and Archaeological Resources

Heritage Consultants prepared a Phase IA Cultural Resources Assessment Survey for the Project Site and prepared a report for the Project in May of 2018. A copy of that report is included with this Petition as Appendix D.

As can be seen in the attached report, there are areas contained within the Project Site that were classified as “moderate/high sensitivity areas” for producing archaeological deposits, given their relatively undisturbed nature. The remainder of the Project (approximately 75% of the acreage of the Project site) consists of areas of no/low archaeological sensitivity.

For the areas that were labeled as moderate or high potential for archaeological sensitivity, Heritage Consultants recommended conducting a Phase IB study to ascertain whether archaeological materials of significance are present at the site. GRE is currently working with Heritage Consultants on the details of what such a Phase IB study would entail.

6.7 Recreation and Other Surrounding Features

The site has limited roadway frontage along Oil Mill Road and is basically a large interior lot with very little visibility to surrounding uses and public roads as a result of topography, existing vegetation and the location of inland wetland and watercourse corridors.

Existing recreational opportunities at the site are limited to hiking, hunting, ATV/motorbike riding, and wildlife viewing.

6.8 Watercourses, Flood Plains and Wetlands

Watercourses, flood plains and wetlands are discussed more fully in Section 2.2 of the Davison Environmental report.

6.8.1 Watercourses

Watercourses are described in Sections 2.2 and 3.4 of the Davison Environmental report. In general, the site contains a segment of Oil Mill Brook, along with wetlands that drain directly to both Oil Mill Brook and Stony Brook. Both streams are tributary to the Niantic River, a tidal waterway draining to Long Island Sound.

6.8.2 Flood Plains

Per the FEMA Flood Insurance Rate Map Number 09011C0343G for New London County, Connecticut, Town of Waterford map effective date: July 18, 2011, the site resides in FEMA Flood Hazard Zone X (Unshaded). This is defined as areas of minimal flood hazard.

6.8.3 Wetlands

Wetlands and watercourses are described in Section 2.2 of the Davison Environmental report. In general, two wetlands occur on the site: Wetland 1 includes Oil Mill Brook, as well as those wetlands that drain to Oil Mill Brook and is the larger of the two wetlands, occupying much of the northwest corner of the site, with several “fingers” that extend from west to east into the hillside; Wetland 2 is a single narrow wetland finger that extends onto the site from the east and

lies on a very steep rocky/bouldery slope before draining to the east into a broad wetland valley that borders on Stony Brook.

6.8.4 Vernal Pool Assessment

Vernal pools are described in Section 3.1 of the Davison Environmental Report. Vernal pools were noted at three locations, referred to as Vernal Pools 1 through 3. All three pools are small in extent, and average ponding depths are shallow (i.e., less than 8 inches), and the depth of ponding is limited, due largely to topography. Pool 2 was nearly completely dry, with only a roughly 6' x 6' area of standing water remaining. Based on these observations, this pool may not be productive in drier years. While pools 1 and 2 occur in natural depressions within larger wetland systems, Pool 3 is located on the upslope side of an existing woods road crossing, and likely was created by the installation of this road.

6.9 Wildlife and Habitat

Wildlife and habitats are described more fully in Sections 2.0 and 3.0 of the Davison Environmental Report. The goal of the assessment completed onsite was to focus on those species most likely to be adversely impacted from a change in land use. These include amphibians and reptiles which have low mobility and dispersal capabilities, as well as breeding birds of conservation concern within the State.

6.9.1 Habitat Description

Wildlife and habitats are described in Sections 2.0 and 3.0 of the Davison Environmental Report.

Onsite wetland habitats are classified as hillside groundwater slope wetlands. Hillside groundwater slope wetlands are wetlands that develop on hillsides, where groundwater discharges to the surface as springs and seeps. Throughout the upland-wetland interface visible groundwater discharge zones (i.e., seeps) are present. A key feature of these wetlands, from a water quality perspective, are the pronounced bedrock and boulder outcroppings where cold well-oxygenated groundwater discharges from fractured bedrock and glacial till.

Two upland habitat types are present, old field (managed utility ROW) and mixed hardwood forest. Old field habitat occurs solely within the Eversource ROW, and totals approximately five acres. The remainder of the site (147 acres) consists of mixed hardwood forest.

6.9.2 Rare, Threatened and Endangered Plants and Wildlife

Rare species are described in Sections 3.1 and 3.2 of the Davison Environmental Report. The eastern ribbon snake (*Thamnophis sauritus*), was observed within Wetland 1 (along the utility ROW). Breeding by two vernal pool indicator species, the wood frog (*Lithobates sylvaticus*) and the spotted salamander (*Ambystoma maculatum*), was noted at three locations, referred to as Vernal Pools 1 through 3.

6.10 Water Supply

No water 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.

6.11 Stormwater

The existing hydrology of the site consists of three major watersheds that are defined by an existing highpoint located in the southwest-central portion of the site. Runoff from the site is directed west toward Oil Mill Brook, south toward Parkway North and Stony Brook, and east toward Stony Brook. The western drainage areas collect overland and shallow concentrated runoff and discharges into an existing tributary of Oil Mill Brook and associated wetlands at the northeastern property line. The eastern drainage areas collect overland and shallow concentrated runoff and discharges offsite and eventually into the Stony Brook. And the southern drainage areas collect overland and shallow concentrated runoffs and discharges off-site and eventually into Stony Brook to the south. All runoff from the central, western, and northwestern portion of the site discharges to Oil Mill Brook and all runoff from the east and southern property lines discharge to Stony Brook. All runoff is eventually conveyed into the Niantic River.

The subject property is located within the Southeast Coast Major Basin, Niantic River (Stony Brook), and Oil Mill Brook.

A total of 13 detention basins have been designed and are strategically located throughout the project site to mimic existing runoff collection areas that convey runoff to adjacent wetlands and watercourses. All ponds have been designed at a minimum distance of 100-ft from delineated wetlands and watercourses, and in sensitive area will discharge stormwater via a level spreader to mimic a sheet flow condition, and avoid point discharge.

Post-construction stormwater runoff will be collected and conveyed to the detention ponds via overland sheet flow, and permanent diversion ditches and swales, and natural drainage pathways. Each pond will include an outlet control structure designed to maintain peak stormwater discharge at or below predevelopment levels.

The proposed stormwater management system is designed to be in compliance with the 2002 State of Connecticut Guidelines for Soil Erosion and Sediment Control and the 2004 State of Connecticut Stormwater Quality Manual. Please see Volume 3 of this Petition for more information

7.0 CONCLUSION

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

- The Project meets CTDEEP'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 using to the greatest extent possible portions of the Project Site that have been subject to former agricultural uses; and
- While the need for formal consideration of prime farmland or forest land is not required for the Project, as it holds a contract under the CTDEEP RFP process, the Project will not alter areas of prime farmland or core forest.

Given the benefits this Project will provide to the State of Connecticut, GRE GACRUX LLC respectfully requests that the Siting Council approve this Project as currently designed