

June 17, 2020

Connecticut Siting Council
10 Franklin Square
New Britain, Connecticut 06051

RE: 15.3 MW AC Solar Photovoltaic Electric Generation Facility
GRE GACRUX LLC
117 Oil Mill Rd, Waterford CT 06385
Petition No. 1347A

Dear Members of the Siting Council:

The Department of Energy & Environmental Protection (DEEP) has reviewed the above referenced petition for a declaratory ruling for the proposed construction, maintenance, and operation of a 15.3 megawatt AC ground-mounted solar photovoltaic electric generating facility at the address above. The following comments are offered for your consideration.

GRE GACRUX LLC submitted this project into the Small-Scale Clean Energy Request for Proposals (RFP) issued by DEEP on March 9, 2016. Connecticut solicited and selected renewable energy projects pursuant to Section 1(b) of Connecticut Public Act 15-107, *An Act Concerning Affordable and Reliable Energy* (P.A. 15-107) and Sections 6 and 7 of Connecticut Public Act 13-303, *An Act Concerning Connecticut's Clean Energy Goals* (P.A. 13-303). Bringing grid-scale renewable energy projects online is an important step forward towards a cheaper, cleaner, and more reliable energy future for the ratepayers of Connecticut as we move to decarbonize our electric grid. In 2018, Connecticut committed to purchase 40% of its electricity from Class I renewable sources by 2030. Connecticut also committed to a mid-point reduction of carbon emissions of 45% below 2001 levels by 2035 on the way to attaining the state's longer-term goal of an emissions reduction of 80% below 2001 levels by 2050. DEEP is also analyzing pathways to achieve a 100% zero carbon electric sector by 2040, as directed by Governor Lamont in Executive Order No. 3. Grid scale renewable energy projects are essential to maintaining compliance with these statutory commitments and executive orders. After reviewing all the projects submitted through the RFP process, DEEP selected the GRE GACRUX LLC project as one of the projects authorized to negotiate a long-term power purchase agreement with the utilities, Eversource Energy and The United Illuminating Company. A contract was successfully negotiated and approved by the Public Utilities Regulatory Authority in 2017.

Motion to Reopen

The Siting Council granted to reopen this petition based on changed conditions. The current design utilizes the *January 2020 Guidance Regarding Solar Arrays and the General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities* (January 2020 Guidance). The project proposes to develop 75 acres of the 150-acre parcel. The parcel is within a larger forested tract of approximately 750 acres. Land surrounding this parcel is currently undeveloped and zoned as rural residential and general industrial. It should be noted that the Town of Waterford Assessor's database indicates the parcel is 140.8 acres, not 152 as stated in the petition.

Development Timeline

The petitioner has consulted with DEEP's Stormwater group to propose an extended development timeframe that allows for one full growing season after hydroseeding. For example, if clearing took place this past spring, construction would begin the following spring.

Stormwater Management

One of the challenges with stormwater management is that design measures must be integrated that prevent erosion and sedimentation which could negatively impact natural resources and properties. The petitioner has applied for DEEP's *General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities* (Stormwater GP). The petition addresses the concerns with solar development listed in the January 2020 Guidance. DEEP staff verified that the petitioner's design team has participated in ongoing meetings with DEEP regarding stormwater management and site design. As a result of DEEP staff recommendations at these meetings, the petitioner has pulled construction away from the property boundaries and proposes to install 15 stormwater management basins throughout the project. The site plans indicate that spillways, energy dissipaters, and level spreaders will be used to slow the velocity of stormwater and eliminate point discharge. Section 3.3.3 in Project Design states that each area for each phase of construction will have a sediment trap/ basin that will be converted to manage post-construction runoff. Best management practices indicate that for any basins designed as infiltration basins, they should not be used as temporary sediment basins during construction and should be constructed at or near the end of development. Prior to grading, infiltration areas should be roped off or flagged to avoid soil compaction. The Siting Council may need to clarify with the petitioner if the infiltration basins are proposed to be utilized during construction (basin numbers 2, 5, 7, 13 and 14 from sheet C-6.2). Detention basins would be designed to discharge to a wetland or waterbody, and retention basins would permanently hold water. Basins and level spreaders should be verified as conforming to the site plans specifications while under construction.

The hydrology report states that the chosen method for stream channel protection for this site was to control the 2-year, 24-hour post-development peak flow rate to 50% of the pre-development level. The intent of this design is to manage storm flows, which will protect stream channels from erosion and associated sedimentation in downstream receiving waters, such as Oil Mill Brook and Stony Brook.

The site plans indicate that slopes over 15% will be graded. Without proposed grading those areas would need to be considered as impervious surfaces for the purpose of calculating stormwater volume following the January 2020 Guidance document. Slope will be checked in the review of the General Permit application. The hydrologic analysis follows January 2020 Guidance to go down one soil group, from group B soils to group C soils, as a conservative approach to sizing stormwater management basins.

Public Act 17-218

As background, this project was selected by DEEP in early 2017 pursuant to Connecticut General Statute's section 16a-3j prior to the enactment of Public Act 17-218. PA 17-218, effective July 1, 2017, states: *"for a solar photovoltaic facility with a capacity of two or more megawatts, to be located on prime farmland or forestland, excluding any such facility that was selected by DEEP in any solicitation prior to July 1, 2017, pursuant to section 16a-3f, 16a-3g, or 16a-3j, the Department of Agriculture (DoAg) represents in writing to the Council that such project will not materially affect the status of such land as prime farmland or DEEP represents in writing to the Council that such project will not materially affect the status of land as core forest."* Projects submitted to the Siting Council after July 1, 2017 and that were not selected by DEEP in a solicitation prior to July 1, 2017 will require written letters from DEEP and DoAg if it is to be submitted through the Council's petition for a declaratory ruling process. For this project, originally submitted in June 2018 to the Siting Council, the application was filed as a Petition and a letter from DEEP is not required because it was selected by DEEP prior to July 1, 2017, and thus fits into the exception in PA 17-218. Regardless of how the project is submitted, DEEP and the Siting Council may consider impacts to forestland, wildlife and wetlands, as well as air and water quality.

Natural Diversity Database

A Natural Resources Database preliminary letter, dated July 5, 2019, was used by the petitioner to initiate surveys for species indicated in the review. Surveys conducted in 2019 noted the dominant upland vegetation in both the recently cleared areas and the remaining tree stands. Approximately 300 taxa of vascular plant species were recorded, noting that the plants listed on the NDDB review were not found on site. State listed reptiles were not noted on site during field observations while more common species were present. Breeding bird surveys were conducted and an inventory of noted birds was created. Specific surveys targeting whip-poor-wills did not detect this species on site. In the final determination letter dated February 28, 2020, the Wildlife Division notes protection strategies for the Eastern ribbon snake, including contractor awareness, relocation out of harm's way, removing silt fence after site stabilization, and reporting any siting to NDDB. The Wildlife Division also stated there should be protection measures for a plant that was later determined not to be the plant on site, as noted in email communications with the applicant on March 3, 2020.

Watershed

Any measures that can be taken on the property to reduce the velocity and volume of water coming off of the ridgelines should be a part of the watershed protection plan. The petition could address heavily vegetating areas that were cleared during tree harvest along the ridgeline, where no

construction will be taking place. Site inspections during and after large rain events may reveal rills and gullies along the ridgeline that could be hydroseeded or stabilized with other methods.

Decommissioning

Decommissioning consists of the removal of all components, the arrays, inverters, transformers, fencing, and transmission lines. Excavated areas will be backfilled and seeded. Components will be disposed of or recycled in accordance with existing statutory or regulatory requirements.

Errata

In the Construction Sequencing notes, sheet C-5.0, remove or modify the several notes that state the Town of Waterford shall be notified for a pre-construction meeting, prior to clearing, or provided emergency contact information. The notes should clearly state that the Siting Council is the authorizing agency for this petition. The Town of Waterford does not oversee the construction of this petition. In the Construction Sequence layout, a note between notes 2 and 3 should state that the site will be left for a full growing season for site stabilization prior to driving piles for racking installation. The cover page has Watertown instead of Waterford.

Thank you for the opportunity to review this project. If there are any questions regarding these comments, please contact me at 860-424-3739 or Linda.Brunza@ct.gov.

Sincerely,

Linda Brunza

Linda Brunza
Environmental Analyst
Office of Planning & Program Development
Department of Energy & Environmental Protection

**GUIDANCE REGARDING SOLAR ARRAYS
AND THE GENERAL PERMIT FOR THE
DISCHARGE OF STORMWATER AND DEWATERING WASTEWATERS FROM CONSTRUCTION
ACTIVITIES**

January 6, 2020

Solar development has expanded over the last several years as Connecticut and other states have invested in this important resource to further greenhouse gas emission reductions. The large amount of impervious surface inherent in the construction of a large-scale solar arrays is unlike most other construction activities regulated under the General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities (“general permit”) and entails challenges not encountered in traditional development projects. If not properly managed through appropriate design and mitigation measures, stormwater discharged during and after the construction of solar arrays can be a significant source of pollution resulting from increased runoff, erosion, and sedimentation, which can adversely impact wetlands or other natural resources. Solar installations must be properly designed to assure soil stabilization, minimize soil disturbance and soil compaction. This includes ensuring that effective controls are put in place to manage the total runoff volume and velocity that can lead to the loss of topsoil, erosion and sediment discharges from disturbed areas and stormwater outlets, and erosion along downstream channels and streambanks. The ability to address such significant environmental problems during construction and post-construction becomes more difficult as site imperviousness increases.

The environmental objectives of the general permit that solar facilities must meet have not changed. What has changed are the design assumptions and application of stormwater management techniques and engineering principles and practices to meet those requirements, as well as the Department’s knowledge and experience with respect to the ability of different techniques and engineering practices to meet the underlying environmental requirements. The Department is obligated to apply its best understanding of management techniques and engineering practices and principles. At the same time, the Department strives to provide more predictability and transparency around its approaches to permitting solar facilities in order to promote environmental compliance and competitive solar development in the state.

To that end, DEEP is publishing this Guidance, available at www.ct.gov/deep/stormwater to assist the professionals engaged in designing and constructing solar array projects, both large and small, and to provide a more transparent understanding of how the Department is considering emerging issues and the manner of addressing them. The Guidance describes the Department’s expectations around how such professionals may ensure that any such project is designed and constructed in a manner that takes into account site conditions such as: the amount, frequency, intensity and duration of precipitation; soil types, topography, surficial geology, hydrology and natural resources; and any changes to such conditions resulting from site activities during and after construction to minimize erosion and sedimentation and to control stormwater discharges, including peak flowrates and total stormwater runoff volume and velocity. This guidance should also help facilitate the preparation and efficient review of a Stormwater Pollution Control Plan (Plan) submitted in support of an application for coverage under the general permit.

This guidance should not be confused with, and is not intended to contain, enforceable requirements. A professional may propose to design and construct a solar array in another manner. A design professional may decide, based on the particular conditions for a project or a site that the best technique or engineering practice is to deviate from this guidance. The Department is open to considering alternative approaches. To be approved, however, any proposal must address the issues noted in this Guidance as well as demonstrate compliance with the requirements of the general

permit. This guidance is provided for informational purposes only and is not meant to modify or replace any provision of the general permit or any applicable laws or regulation. In the event of a conflict between this guidance and the general permit or any applicable law or regulation, the permit or applicable law or regulation shall govern.

The Department notes that it has separately initiated a public comment process on the proposed Construction General Permit, which includes similar provisions described in this guidance. The final adoption of a new Construction General Permit will negate the need for this Guidance. Any questions about the applicability of this Guidance may be directed to Karen Allen at Karen.Allen@ct.gov.

Design and construction guidance

- (1) Roadways, gravel surfaces and transformer pads within the solar array are considered effective impervious cover for the purposes of calculating Water Quality Volume (WQV). In addition to these impervious surfaces, all solar panels in the array should also be considered effective impervious cover for the purposes of calculating the WQV if the proposed post-construction slopes at a site are equal to or greater than 15% or if the post-construction slopes at a site are less than 15% and the conditions in (a) – (e), inclusive, below have not been met:
 - (a) The vegetated area receiving runoff between rows of solar panels (see Figures 1 and 2, below) is equal to or greater than the average width of the row of solar panels draining to the vegetated area;
 - (b) Overall site conditions and solar panel configuration within the array are designed and constructed such that the runoff remains as sheet flow across the entire site;
 - (c) The following conditions are satisfied regarding the design of the post-construction slope of the site:
 - For slopes less than or equal to 5%, appropriate vegetation shall be established as indicated in Figure 1, below; and
 - for slopes greater than 5%, but less than 10%, practices including, but not limited to, the use of level spreaders, terraces or berms as described in Figure 2, below, shall be used to ensure long term sheet flow conditions; and
 - for sites with slopes greater than or equal to 8%, erosion control blankets or stump grindings or erosion control mix mulch or hydroseed with tackifier should be applied within 72 hours of final grading, or when a rainfall of 0.5 inches or greater is predicted within 24 hours, whichever time period is less; and
 - for slopes equal to or greater than 10% and less than 15%, the Plan includes specific engineered stormwater control measures with detailed specifications that are designed to provide permanent stabilization and non-erosive conveyance of runoff to the property line of the site or downgradient from the site.
 - (d) The solar panels should be designed and constructed in such a manner as to allow the growth of vegetation beneath and between the panels.
 - (e) A one-hundred (100) foot buffer should be maintained between any part of the solar array and any of the following: “wetland” as that term is defined in Conn. Gen. Stat. § 22a-29, “wetlands” as defined in Conn. Gen. Stat. § 22a-38, or “waters” as defined in Conn. Gen. Stat. § 22a-423, which shall include vernal or intermittent waters. The buffer shall consist of undisturbed existing vegetation or native shrub plantings.
- (2) The lowest vertical clearance of the solar panels above the ground should not be greater than ten (10) feet. The panels should, however, be at an adequate height to support vegetative growth and maintenance beneath and between the panels. If the lowest vertical clearance of the solar panels above the ground is greater than ten (10) feet, non-vegetative control measures will be necessary to prevent/control erosion and scour along the drip line or otherwise provide energy dissipation from water running off the panels.

- (3) The Commissioner may require that a letter of credit be secured prior to undertaking construction activity, in circumstances where site conditions, scale of project or previous compliance issues present elevated risks associated with potential non-compliance. For previously permitted projects, the amount of the letter of credit has been established at \$15,000.00 per acre of disturbance. The wording of such letter of credit shall be as prescribed by the Commissioner. The Permittee should maintain such letter of credit in effect until the Commissioner notifies the permittee that the Notice of Termination, filed in compliance with Section 6 of the general permit has been accepted by the Commissioner.

Design requirements for post-construction stormwater management measures.

- (1) Post-construction stormwater control measures should be designed and constructed to provide permanent stabilization and non-erosive conveyance of runoff to the property line of the site or downgradient from the site.
- (2) Orientation of panels should be considered with respect to drainage pattern, flow concentration, drainage area and velocity (i.e. rows perpendicular to the contours may result in higher runoff and flow concentration).
- (3) The permittee should conduct a hydrologic analysis that:
- (a) Evaluates 2, 25, 50 and 100-year storm post-construction stormwater flows; and
 - (b) Is based on site specific soil mapping to confirm soil types; and
 - (c) Is able to determine and confirm the infiltrative capacity of any stormwater management measures and, in addition, reflects a reduction of the Hydrologic Soil Group present on-site by one (1) step (e.g. soils of HSG B shall be considered HSG C) to account for the compaction of soils that results from extensive machinery traffic over the course of the construction of the array; and
 - (d) Is based on slope gradient, surveyed soil type (adjusted per subparagraph (c), above), infiltration rate, length of slope, occurrence of bedrock, and change in drainage patterns (see also page 23 at https://www.ct.gov/deep/lib/deep/Permits_and_Licenses/Land_Use_Permits/Inland_Water_Permits/IWRD_inst.pdf); and
 - (e) For an engineered stormwater management system, demonstrates no net increase in peak flows, erosive velocities or volumes, or adverse impacts to downstream properties.

Figure 1
Solar Panel Installation with Slopes $\leq 5\%$

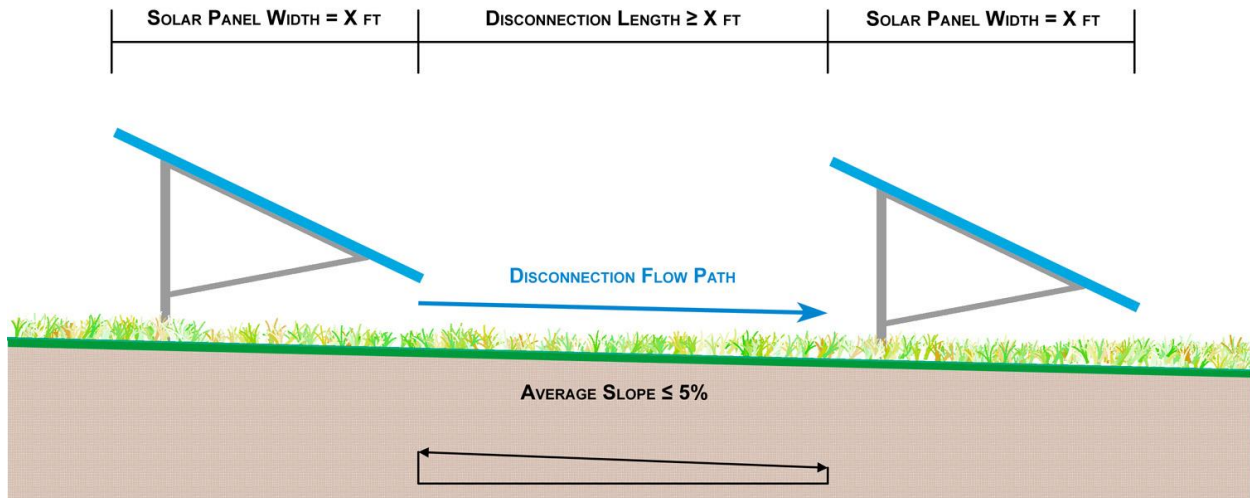
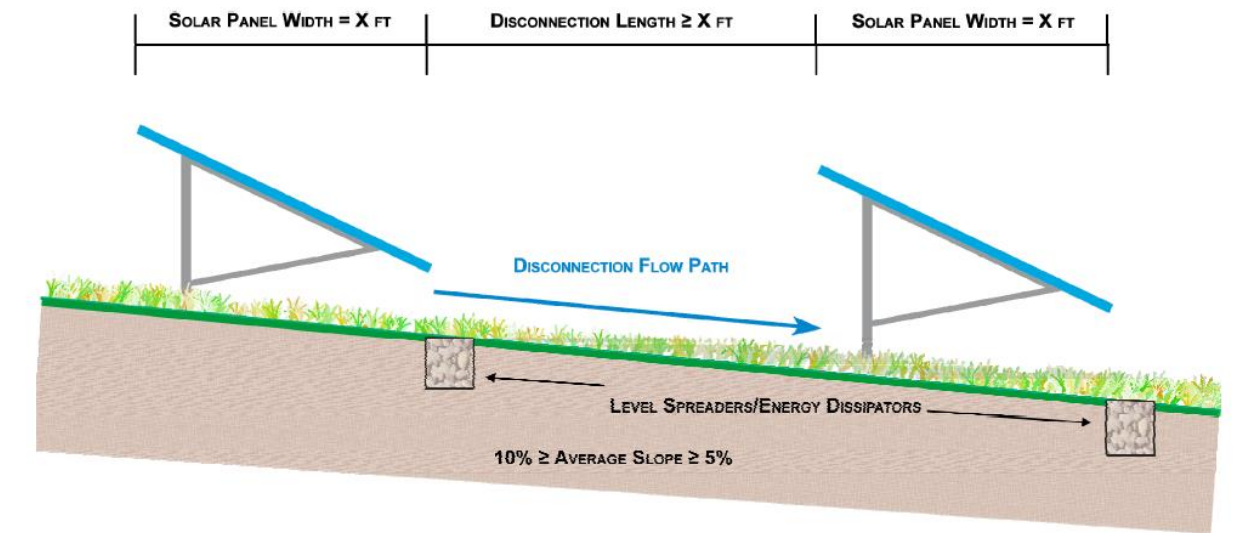


Figure 2
Solar Panel Installation with Slopes $> 5\%$ and $\leq 10\%$



Source: Maryland Department of the Environment: Stormwater Design Guidance – Solar Panel Installations