



STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

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VIA ELECTRONIC MAIL

November 29, 2018

TO: Parties and Intervenors

FROM: Melanie Bachman, Executive Director *MB*

RE: **PETITION NO. 1352** – Nutmeg Solar, LLC, petition for a declaratory ruling, pursuant to Connecticut General Statutes §4-176 and §16-50k, for the proposed construction, maintenance and operation of a 19.6-megawatt AC solar photovoltaic electric generating facility on approximately 162 acres comprised of 9 separate parcels located generally south of Bailey Road and east of Route 191 (Broad Brook Road), and associated electrical interconnection to Eversource Energy's Scitico Substation at 20 Bailey Road in Enfield, Connecticut.

Comments have been received from the Connecticut Department of Energy and Environmental Protection, dated November 28, 2018. A copy of the comments is attached for your review.

MB/MP/lm

c: Council Members



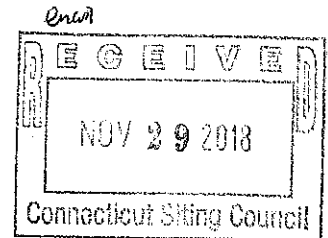
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Affirmative Action/Equal Opportunity Employer

November 28, 2018

Robert Stein, Chairman
Connecticut Siting Council
10 Franklin Square
New Britain, Connecticut 06051



RE: 19.6 MW Solar Photovoltaic Electric Generation Facility
Nutmeg Solar, LLC
Bailey Road and Broad Brook Road, Enfield CT
Petition No. 1352

Dear Chairman Stein:

The Department of Energy & Environmental Protection (DEEP) has reviewed the above referenced *Petition for Declaratory Ruling* that the installation and operation of a 19.6-megawatt AC ground-mounted solar photovoltaic electric generating facility will not have substantial adverse environmental effects and will not require a *Certificate of Environmental Compatibility and Public Need*. The following comments are offered for your consideration.

Renewable Energy

The Project was selected by the DEEP under the March 2016 Connecticut Request for Proposal (RFP) for Clean Energy. Connecticut solicited and selected renewable energy projects issued pursuant to Section 1(c) 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"). The RFP process represents an important step forward in the implementation of DEEP's vision for a cheaper, cleaner, and more reliable energy future for the ratepayers of Connecticut. Bringing more grid-scale renewable energy projects on line is instrumental in furthering this vision as these resources help diversify the regional fuel mix, assist the state in meeting its commitment to procure 40% of its electricity from Class I renewable sources by 2030, and also, contribute to the state's goal of reducing carbon emissions by 80% below 2001 levels by 2050.

Description of Site

The site is located in Enfield, bounded by Bailey Road (north), Broad Brook Road (west), and undeveloped parcels (south). The project will combine nine parcels and will develop 131 out of 162 acres. The land to be developed contains agricultural fields and a forested area. The site has no jurisdictional wetlands or watercourses and has a relatively gentle topography, ranging from 166 to 320 feet, and is close to existing electrical infrastructure. The western section of the site is predominantly agricultural fields. The outbuildings will be removed. The forested area of

approximately 91 acres contains indications of past timber harvests, gravel extraction, a network of trails, and tree stands for hunting activities. An area with standing water was identified by the consultant as a vernal pool. Site restrictions and avoidance measures for the vernal pool are discussed in the application.

Activities

Nutmeg Solar LLC (The Petitioner) proposes to install fixed tilt solar photovoltaic systems composed of solar modules, inverters, a collector substation, electrical infrastructure, a series of gravel roads, perimeter fencing, and stormwater management features. Earthwork includes vegetation clearing, grubbing, excavation for roadwork, and grading. Proposed grading is only to remove existing undulations and not to change the overall topography of the site. The Petitioner proposes to clear and grub 91 acres of vegetation. Selective vegetation clearing is proposed on five acres within the forested area surrounding the vernal pool shown on page C-11 of the site plan included with this application, entitled **Nutmeg Solar Project, Permit Application Set, Enfield, CT, October 2018**. Selective cutting will be done by hand with chainsaws, brush saws, loppers or hand pruners. Vegetation that could grow over the acceptable canopy height limit of 20 to 40 feet will be removed. Plantings are proposed west of the vernal pool along the edge of the site road once the area has been cleared and graded. The development area will be planted with native seed mix that will be maintained.

Water Quality

The applicant analyzed existing groundcover types and soil conditions to determine the Runoff Curve Number (CN) for each drainage area. The higher the number, the more susceptible the site is to runoff. The accepted and common methodology was utilized: the United States Department of Agriculture Technical Release (TR) 55. The analyses of pre and post-construction require the applicant to assign the proper CN to the soil and groundcover type that dominates each of the drainage sections. In Table 2.1, the NRCS Soil Summary, the only soil type not included in that table is 66B, which the Petitioner notes in the Hydrological Soil Group table included in the report as covering 137.3 acres or 28% of the site (Exhibit K, Appendix B, page 3). Soil type 66B is rated as a Group B soil with moderate infiltration. Including this soil in the table and in the analysis will probably not change the overall CN, but it is worth noting that it is missing from the analysis.

Also worth noting for the Siting Council, is the Petitioner utilizes proposed berms in the analysis for post-construction runoff potential. **The Siting Council should consider requesting Best Management Practices as a condition of approval to maintain those berms** so they do not fill with soil and change the rate of runoff from these proposed calculations. For example, the berms should be cleaned out at least every 6 months but no less than once a year. The Petitioner also indicated that in post construction conditions, the only impervious surfaces created by the solar panels are the topographically highest rows of solar panels, and once water runs off the panels it will travel on site beneath the subsequent rows of panels.

Construction Stormwater Management

Construction-related land disturbances of 0.5 acres or larger are regulated in Connecticut pursuant to the Connecticut Soil Erosion and Sediment Control Act under Sections 22a-325 to 22a-329, inclusive, of the Connecticut General Statutes (CGS). Construction-related land disturbances of one (1) acre or larger are also regulated under CGS Section 22a-430 and under Section 402(p) of

the federal Clean Water Act and the National Pollutant Discharge Elimination System (NPDES) program. Prior to the start of such regulated activities, authorization is required from local authorities and, for larger projects, DEEP. Construction projects involving five (5) or more acres of land disturbance require an individual NPDES discharge permit from the DEEP, or may be eligible to register for coverage under DEEP's NPDES General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities (general permit).

Based upon the problems encountered in regards to large areas of land disturbance at solar farm construction projects, DEEP has provided a guidance document dated September 2017 (attached).

The Petitioner recognizes the need to register for DEEP's general permit to address the stormwater discharges associated with the proposed project in Exhibit K, Stormwater Management Report. The critical consideration is being able to maintain site stabilization during construction. The site is located away from major roads and residential developments and appears to have minimal environmental impact. The soil and erosion control measures will be analyzed by DEEP during the review for a Construction General Permit.

DEEP met with the Petitioner during two pre-application meetings to discuss strategies they may use in stormwater management during construction and wildlife management issues. During those meetings, it was discussed that the application for the Stormwater Construction General Permit would be timed with the submission of the application to the Siting Council. It was determined that sediment traps would remain until the site was fully stabilized and a tackifier would be used with hydroseeding.

Natural Diversity Database

The Natural Diversity Database review dated August 3, 2018 (NDDDB Determination No: 20176175) agrees with the best management practices provided by the consultant to lessen the impacts of the project on amphibian and reptile species that may occur in the project footprint. The determination expires on August 3, 2020, and must be re-submitted if the scope of work changes or if construction has not started by that date. No observations of the targeted species (Eastern spadefoot toad, Eastern box turtle, wood turtle) were made during surveys in spring and summer of 2017 and 2018. No other rare, threatened or endangered amphibians or reptiles were observed. The consultant, Tetra Tech, noted low species abundance and low diversity in the study area. Best Management Practices include training contractors and regular consultation with a specialist or environmental monitor to ensure compliance with the plan. Timing of construction will avoid seasonally sensitive time periods. No heavy earthwork (clearing and grading) will be done from March to June. No work is proposed within wetland or watercourses, and tree clearing will be completed in the winter (November- March) to reduce ground disturbance. The following are recommended by the consultant and accepted by DEEP:

- Contractor training;
- Exclusion fencing;
- Clearing restrictions;
- Regular inspections and monitoring;
- Documentation and reporting of observations.

Details of the accepted best management practices are located in the *Herpetofauna Avoidance and Mitigation Plan for Nutmeg Solar Project*, prepared by Tetra Tech dated July 27, 2018. Tetra Tech determined the site is unlikely to support big sand tiger beetles and other beetles due to agricultural use and residential development where the Windsor soils are mapped. Nevertheless,

the Petitioner modified the project to exclude areas mapped by the Natural Resources Conservation Service as Windsor soils to avoid the possibility of affecting beetles. To avoid harm to reptiles and amphibians, the applicant has stated on pages 22-24 of the Environmental Site Conditions Report that they will use exclusion fencing throughout each construction phase and conduct tree clearing in winter months. Clearing of vegetation between October 1 and March 31 will also avoid impacts to sparrows, which could nest from the middle of May to the middle of August.

Wetlands and Vernal Pools

The consultant, Tetra Tech, did not identify any wetlands meeting the federal definition, or hydric soils, or watercourses, on site. The depression wetland likely created by previous excavation had evidence of amphibian breeding habitat. A 100 ft. buffer has been provided for that reason. During previous meetings with the Petitioner, DEEP Wildlife requested a 100 ft. buffer around any vernal pools. Tetra Tech notes that the depression qualifies as a vernal pool following the literature by Calhoun and Klemens (2002) because there are two indicator species present, the envelope of the vernal pool is forested, and most of the surrounding land from 100 to 750 ft. around the pool is undeveloped (considered as "critical habitat"). Tetra Tech refers to this vernal pool as a "sink," which is a vernal pool that provides habitat for a few of the obligate vernal pools species only during ideal (wet) years, but those species must rely on other productive pools for re-population. Tetra Tech also notes that the vernal pool is not a federal wetland by definition because it did not contain hydric soils or hydrophytic vegetation.

Decommissioning Plans

DEEP recommends that the Siting Council require the petitioner to post a performance bond or other security to ensure funds are available for site restoration as outlined in Exhibit L, Section 3. Temporary erosion and sedimentation control and best management practices are proposed during the decommissioning phase. Please note that the decommissioning plan does not specifically state the land will be returned to a state capable of supporting agricultural use. The current landowner will be consulted for restoration activities. Prior to decommissioning, the petitioner should consult with DEEP on any permits that may be required during land disturbance operations.

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 if there are any questions.

Respectfully yours,

Linda Brunza
Environmental Analyst

Cc: Robert Klee, Commissioner

Stormwater Management at Solar Farm Construction Projects September 8, 2017

Solar farms are on-the-ground installations of arrays of photovoltaic cell panels, supporting structures and related equipment for the production of electricity. As with other types of construction projects, the construction of solar farms can involve land clearing, grading, excavation, trenching, dewatering and similar activities that create land disturbances which potentially result in soil erosion and sediment discharges polluting wetlands, streams and other surface waters. Construction-related land disturbances of 0.5 acres or larger are regulated in Connecticut pursuant to the Connecticut Soil Erosion and Sediment Control Act under Sections 22a-325 to 22a-329, inclusive, of the Connecticut General Statutes ("CGS"). Construction-related land disturbances of one (1) acre or larger are also regulated under CGS Section 22a-430 and under Section 402(p) of the federal Clean Water Act and the National Pollutant Discharge Elimination System ("NPDES") program. Prior to the start of such regulated activities, authorization is required from local authorities and, for larger projects, the Connecticut Department of Energy and Environmental Protection ("Department"). Construction projects involving five (5) or more acres of land disturbance require an individual NPDES discharge permit from the Department, or may be eligible to register for coverage under the Department's NPDES General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities (general permit).

The Department has encountered repeated problems associated with solar farm construction projects covered under the general permit, from the registration process through construction activities. Although in no way an exhaustive list, the following are common problems associated with solar farm general permit registration applications and ways to address such problems:

- Applicants have been submitting registration applications that lack the requisite information or the requirements necessary for authorization under the general permit. The Department requires a complete and sufficient application when a registration application is filed, and may reject any registration application it deems to be incomplete or insufficient.
- Applicants are not adhering to the sixty (60) day/ninety (90) day time frame for Department review as required by Section 3(c) of the general permit. While the Department has on occasion shortened the review timeframe, Applicants are expected to allocate no less than the requisite time frame for the registration application review process and must plan accordingly.
- Registration applications for solar farm projects often fail to identify the project's contractor and sub-contractors. Section 5(b)(1)(viii) of the general permit mandates that this information be included in the registration application.

- Applicants have been repackaging the Siting Council submittal, which is not acceptable. Section 3(c)(2)(D) of the general permit mandates that the application submittal include only materials required to support the Stormwater Pollution Control Plan (“SWPCP”). This information must be up-to-date and accurate. Any superfluous information delays the registration application review process.
- SWPCPs for solar farm projects are often lacking sufficient detail and information. An approvable SWPCP shall include, but not be limited to, the location of all erosion, sediment and stormwater control measures including detailed design cut sheets with supporting calculations, construction means and methods, project phasing (i.e., site planning, pre-construction, construction, and post-construction stabilization, etc.), construction sequencing and a construction schedule.
- The Applicant’s design professional must be well-versed in the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control (“E&S Guidelines”), specifically the techniques found in Chapter 4, Large Construction Sites, the 2004 Connecticut Stormwater Quality Manual, as well as *current* best management practices (BMPs) recognized by the International Erosion Control Association (IECA), provided such BMPs are equal to or better than the E&S Guidelines.
- From the Department’s perspective, an approvable SWPCP will include methods for avoiding compaction of soils, disconnection and reduction of runoff associated with solar panel arrays, avoidance of concentration of stormwater, and other measures necessary to maintain or improve pre-construction hydrologic conditions.
- Applicants need to follow the SWPCP review checklist when preparing the SWPCP, giving specific attention to post-construction stormwater controls and the development of a detailed long-term maintenance plan to ensure that the SWPCP meets the terms and conditions of the general permit.

Subsequent to authorization for coverage under the general permit, the Registrant is responsible for ensuring compliance with all terms and conditions of the general permit and the approved SWPCP once construction has been initiated. However, for solar farm projects, Registrants often fail to comply with the terms and conditions of the general permit, including the approved SWPCP. In particular, Department staff have observed the following issues that a routine inspection protocol and proper oversight, as required under the general permit, would have prevented, including but not limited to:

- pre-construction site planning and management deficiencies (e.g., existing vegetation, scheduling, training, phasing/sequencing, tree protection, etc.)
- ineffective placement, maintenance, and/or repair of administrative/procedural, vegetative, and structural BMPs (e.g., erosion, sediment and stormwater runoff controls, good housekeeping, materials management, and training)
- lack of thorough inspections
- ineffective or untimely corrective action
- ineffective stabilization practices
- ineffective permanent post-construction controls (i.e., store, treat and direct stormwater quality and quantity to pre-construction levels)

Such issues at solar farm construction projects raise concerns, since such projects often create areas of land disruption larger than the generally accepted BMPs of five (5) acres anticipated under the general permit. As a result, any applicant seeking coverage under the general permit

for a solar farm construction project should take care to address the issues noted above. While by no means exclusive, some recommendations that should be incorporated into a SWPCP to address these issues include:

- Ensuring that only a Professional Engineer and/or Landscape Architect, as defined in Section 2 of the general permit, who meets the qualifications described in Section 5(b)(4)(A)(ii) and who has been approved in writing by the Commissioner, serve as the Commissioner's agent to inspect the site and also serve as the qualified inspector for the purposes of Section 5(b)(4) of the general permit ("authorized professional"). Such authorized professional must remain in good standing with the Connecticut Department of Consumer Protection and be technically and ethically qualified to inspect the site and be retained for the duration of the construction project until the Notice of Termination acceptable to the Commissioner has been filed as described below.
- Ensuring that the authorized professional prepare a proposed inspection checklist to assure the construction project is being conducted in compliance with the terms and conditions of the general permit, and the approved SWPCP is implemented in accordance with the general permit. The inspection checklist shall comply with Section 5(b)(4)(B)(iii) of the general permit, and include a space for the authorized professional's signature and professional stamp.
- Ensuring that the credentials for the authorized professional proposed by the Applicant and the proposed inspection checklist prepared by such authorized professional be submitted for the review and approval of the Commissioner and be included with the registration application for the general permit. No other professional may serve as the authorized professional without the prior submittal of relevant credentials and inspection checklist for the Commissioner's review and written approval.
- Ensuring that the authorized professional personally perform all pre-construction, construction, and post-construction site inspections; perform inspections at the end of any storm event whether or not such storm generates a discharge; and prepare and submit all inspection reports including the supporting inspection checklists in compliance with Sections 5(b)(4)(A) and 5(b)(4)(B) of the general permit.
- Ensuring that the authorized professional report any violations of the terms and conditions of the general permit or the SWPCP to the Commissioner's designee within two (2) hours of becoming aware of such violation, or at the start of the next business day of becoming aware of such violation outside normal business hours and shall, within five (5) days, prepare and submit a signed and stamped written report, which documents the cause of the violation, duration including dates and times, and corrective action taken or planned to prevent future occurrences.
- Ensuring that if circumstances necessitate a revision to the SWPCP, the authorized professional works with the Permittee's design professional to ensure compliance with the terms and conditions of the general permit, and any such change to the SWPCP shall be submitted for the review and written approval of the Commissioner.
- Ensure that the authorized professional reviews all stormwater monitoring reports to evaluate the effectiveness of the SWPCP and to document any adverse impacts that any stormwater controls on the construction site or discharges from the construction site may have on wetlands, streams, any other receiving waterbodies. Such evaluation shall be documented in the inspection reports and inspection checklists performed pursuant to Section 5(b)(4) of the general permit.

- Ensuring that, in the event the authorized professional identifies a violation of the terms and conditions of the general permit, the SWPCP, or otherwise identifies adverse impacts on wetlands, streams or any other receiving waterbodies, that construction activity shall immediately cease and the site stabilized until such violation or adverse impacts have been corrected.
- Ensuring that reporting and record-keeping of all inspection checklists and inspection reports comply with the requirements of Section 5(d) of the general permit, except that a copy shall also be submitted electronically to the Department within ten (10) days from the date such inspection was performed.
- Ensuring that all inspection checklists and inspection reports comply with the requirements for Certification of Documents in Section 5(i) of the general permit, including the requirement that such checklists and reports shall also be prepared, stamped and signed by the authorized professional.
- After completion of a construction project, ensuring that a Notice of Termination is filed in compliance with Section 6 of the general permit, including the requirement that such Notice of Termination be stamped and signed by the authorized professional certifying that such authorized professional has personally inspected and verified that the site has been stabilized following the first full growing season (i.e., April through October) in the year following completion of the construction project.
- Ensuring that any transfer of the registration comply with the requirements of Section 5(m) of the general permit.

These recommendations are by no means intended to be exclusive. To help address the issues noted above, the Commissioner will also be considering the posting of a performance bond or other security, in accordance with Section 22a-6(a)(7) of the Connecticut General Statutes, to assure the solar farm construction project maintains compliance with the terms and conditions of the general permit and the SWPCP.