

DOCKET NO. 505 - Haddam Quarter Solar, LLC application for a Certificate of Environmental Compatibility and Public Need for the construction, maintenance, and operation of a 2.8-megawatt-AC solar photovoltaic electric generating facility located south of Haddam Quarter Road and north of Johnson Lane, Durham, Connecticut and associated electrical interconnection. } Connecticut
} Siting
} Council

December 2, 2021

Opinion

Introduction

On July 9, 2021, Haddam Quarter Solar, LLC (Applicant) submitted an application (Application) to the Connecticut Siting Council (Council), pursuant to Connecticut General Statutes (CGS) §16-50p, for a Certificate of Environmental Compatibility and Public Need (Certificate) for the construction, maintenance, and operation of a 2.8 megawatt (MW) alternating current (AC) solar photovoltaic electric generating facility located south of Haddam Quarter Road and north of Johnson Lane, in Durham (Town Parcel ID #18-22), and associated electrical interconnection.

Jurisdiction

Under the Public Utility Environmental Standards Act, the Council's charge is to balance the need for adequate and reliable public utility services at the lowest reasonable cost to consumers with the need to protect the environment and ecology of the state. Pursuant to CGS §16-50p, for an application for an electric generating facility under CGS §16-50i(a)(3), the Council shall not grant a Certificate, either as proposed or modified by the Council, unless it shall find and determine:

- a) A public benefit for the facility and considers neighborhood concerns with respect to the nature of the probable environmental impacts of the facility, including public safety;
- b) the nature of the probable environmental impact of the facility alone and cumulatively with other existing facilities, including a specification of adverse effects relative to electric and magnetic fields, impact on and conflict with the policies of the state concerning the natural environment, ecological balance, public health and safety, scenic, historic and recreational values, agriculture, forests and parks, air and water purity and fish, aquaculture and wildlife; and
- c) why the adverse effects are not sufficient reason to deny the application.

Public Benefit

Pursuant to CGS §16-50p(c), a public benefit exists when a facility is necessary for the reliability of the electric power supply of the state or for the development of a competitive market for electricity. Public benefit exists if the Council finds and determines a proposed electric generating facility contributes to forecasted generating capacity requirements, reduces dependence on imported energy resources, diversifies state energy supply mix and enhances reliability¹.

The project is prepared to bid into the State's Feed-in-Tariff (FIT) program. The FIT program allows utilities to purchase the energy from renewable power sources and their associated Renewable Energy Credits (RECs) under a 20-year contract. The FIT program replaced the Low/Zero Emissions Renewable Energy Credit program. The Applicant anticipates Eversource would purchase the energy/RECs associated

¹ *Preston v. Connecticut Siting Council*, 21 Conn. App. 85 (1990)

with the Project. Under the FIT contract with Eversource, Virtual Net Metering credits would be awarded to the Town of Durham (Town) and Regional School District 13.

The project would contribute 2.8 MW of nameplate generating capacity. While this project would not directly factor into the calculation for forecasted generation capacity in ISO-NE territory, it would reduce the demand for power on the distribution circuit it would connect to; this would also increase the reliability of the overall electric grid by reducing the demand for centrally-located generation, providing capacity and alleviating stress on the grid. The solar facility represents a clean, local source of renewable energy that would reduce Connecticut's reliance on imported energy sources. It would also diversify the state's energy supply mix by adding a renewable energy resource to the state's portfolio.

In light of Governor Lamont's Executive Order No. 3 to decarbonize the state's electric generation fleet and the project's participation and selection in the competitive FIT auction, the project is necessary for the development of a competitive market for electricity.

Proposed Project

Pursuant to a lease agreement with the property owner, Newtown Family Trust, the Applicant would construct the solar facility on a 10.5-acre site² located within an approximately 48.44-acre parcel that has been historically used for agriculture. The host parcel abuts Haddam Quarter Road to the north and Johnson Lane to the south. Abutting land use includes undeveloped land, recreational and residential.

The host parcel is zoned Farm Residential and contains open fields, forest and wetlands. Hersig Brook extends through the middle of the property with open fields on either side. An electric distribution line on wooden poles crosses the property in an east-west direction on the north side of Hersig Brook.

The solar facility would be constructed in an open field area on the south side of the property, south of Hersig Brook and north of Johnson Lane.

The solar facility would consist of 7,434 solar panels (Trina DuoMAx Twin) rated at approximately 465 Watts installed on a fixed, steel post racking system. The total AC capacity at the point of interconnection would be 2.8 MW AC.

The solar panels would be installed on the racking system facing the south and oriented at an angle of 30 degrees above the horizontal. The solar panels would reach a maximum height of 10 feet above grade and would have approximately 15-foot wide aisles between the panel racks.

The solar facility would be surrounded by a seven-foot tall farm style fence.

The site would be accessed by two 15-foot wide gravel access drives, one on the east end and one on the west end of the site. The east access drive would extend approximately 80 feet into the site and would include two gravel vehicle turnaround lanes. The west access drive would extend for approximately 150 feet, generally running parallel to Johnson Lane, and would also include a turnaround area.

The Applicant proposes to establish and maintain a post-construction walking path that would extend from Johnson Lane along the north perimeter fence, ending at existing farm cart path in the central portion of the property. The walking path does not extend to the eastern portion of the property. It would be a mowed grass aisle accessible to the public. Walking paths are not necessary for the operation of a solar facility site.

² The lease agreement is for the entire 48.44 acre parcel with the provision that a lease amendment may be executed for the portion of the parcel that will be developed for the project.

If the Applicant establishes any walking path, it should be demarcated outside of the boundaries of the Site, as defined by RCSA §16-50j-2a(29), and under a separate lease with the host property owner.

Electrical Interconnection

Project interconnection would be to Eversource's electric distribution system. It would require seven new utility poles, three owned by the Applicant (customer side) and four owned by Eversource (utility side). The new poles would be installed along the west end of the site, adjacent to the proposed west access drive, electrical equipment pad and along Johnson Lane. Eversource requires overhead lines for the interconnection and separate poles for the utility-owned disconnect, utility-owned recloser, utility-owned primary meter and utility telemetry equipment. Although the interconnection agreement has been completed with Eversource, in order to improve project aesthetics, the Applicant would examine ways to reduce the number of utility poles on the customer side required for the interconnection, such as undergrounding lines and using pad mounted equipment in lieu of utility poles.

From the utility side interconnection point on Johnson Lane, a 3-phase line would be installed, extending west for approximately 2,350 feet. To accommodate the 3-phase line, two wires on new supporting cross arms would be added to the existing utility poles along Johnson Lane.

Project Alternatives

The Applicant considered the following factors in its site selection process: Ability to reach an agreement with a landowner on lease terms that are economic for the project, parcel size and suitability, proximity to existing electrical infrastructure, compatibility with surrounding land use, and environmental resource constraints. Due to complexities of selecting a site and the related interconnection analysis required to determine if a site is viable, the proposed site was the only site examined by the Applicant in the Durham area as it met the Applicant's suitability criteria and the property owner was willing to lease the site for solar facility development.

The Applicant initially proposed a larger project footprint on the host parcel but subsequently designed an alternative layout based on neighborhood concerns.

Pursuant to CGS §16-50p(g), the Council has no authority to compel a parcel owner to sell or lease property, or portions thereof, for the purpose of siting a facility.³

Neighborhood Concerns

The Council held a publicly noticed public comment session via Zoom conferencing on September 28, 2021, commencing at 6:30 p.m. No members of the public signed up to speak at the public comment session.

While the Council public comment record was open, four interested persons provided written limited appearance statements expressing concerns that included, but were not limited to, buffers/setbacks, tree clearing, agricultural co-use, noise, alternative sites, wildlife and visual screening.

Prior to submission of the Application to the Council, the Applicant held a Virtual Public Information Meeting (VPIM) on March 3, 2021 for the Town and area residents. A second VPIM was held on April 22, 2021 that was hosted by the Town Planning and Zoning Commission.

³ *Corcoran v. Connecticut Siting Council*, 284 Conn. 455 (2007); CGS §16-50p(g) (2019)

Based on neighborhood concerns received at the VPIM, the Applicant modified the Project as follows:

- a. Reduced the project footprint by approximately 7.5 acres;
- b. Eliminated tree clearing along the west and north sides of the proposed solar field;
- c. Relocated the access drive away from an existing residential driveway;
- d. Developed a landscape plan; and
- e. Redesigned the perimeter fence from a chain link to a farm style fence.

Public Safety

The project would comply with the National Electrical Code (NEC), the National Electrical Safety Code (NESC) and any applicable federal and state codes and standards.

The Applicant would provide training and coordinate with emergency responders regarding access to the facility and emergency shut-off switches.

The project would be located within the Federal Emergency Management Agency-designated unshaded Zone X, an area outside both the 100-year and 500-year flood zones.

Noise generated during facility operations would comply with the Department of Energy and Environmental Protection (DEEP) Noise Control Standards. Noise resulting from construction is exempt from DEEP Noise Control Standards.

The Project has an anticipated life of 25 years; however, the Applicant has the option to extend the lease agreement. Decommissioning of the project would include infrastructure removal and site restoration consistent with the lease agreement with the property owner.

The Applicant obtained Toxicity Characteristic Leaching Procedure (TCLP) test results from the manufacturers of the proposed solar panels, and such results confirmed that these solar panels would not be characterized as hazardous waste at the time of disposal under current regulatory criteria.

The Project would be remotely monitored and feature remote shutdown capabilities. The solar facility would have a protection system to shutdown sections of the facility. The facility can also be shut down at the inverter level or at the recloser location on the riser pole.

Environmental

Historic and Archaeological Resources

According to State Historic Preservation Office (SHPO) records, there are no properties or districts on the National Register of Historic Places (NRHP) within one mile of the project area. Field studies for archaeological resources were performed but no areas of archaeological significance eligible for listing on the NHRP were identified.

By letter dated August 23, 2021, SHPO determined that the project would not affect historic properties or cultural resources, and no additional archaeological investigations of the site are warranted.

Visibility

Generally, views of the project would be limited due to the relatively low height of the facility, with the solar panels reaching a height of approximately ten feet. Additionally, the solar panels are designed to absorb incoming solar radiation and minimize reflectivity.

Year-round views of the project from off-site locations are limited to Johnson Lane and driveways across from the site that extend uphill from Johnson Lane to residential properties. Most of these properties have intervening forest between the residences and Johnson Lane. When leaves are off of the trees, seasonal views would extend onto these properties. Views of the Project may also occur from a residential property abutting the site to the southwest.

A narrow wooded buffer of varying tree density exists between the solar field footprint and Johnson Lane. The Town owns a portion of the wooded buffer as it extends along Johnson Lane. The Applicant would clear trees on the landlord's portion of the buffer to reduce project shading, leaving existing vegetation and trees on the Town's portion. The exact number of trees to be cleared on the landlord's property is not known as a property survey must be completed along Johnson Lane.

The Applicant proposes a Landscape Plan with low growing native shrubs between the project perimeter fence and the Town's portion of the wooded buffer to screen views of the facility from Johnson Lane. Visual screening of the project would be difficult from Johnson Lane because it is at a higher elevation than the project area and the proposed landscaping would have to be of low height to prevent project shading.

The Council will require that a final landscaping plan be included within the Development and Management Plan (D&M Plan) that includes tree clearing along Johnson Lane, landscape planting and final seed mix details.

A state-designed scenic roadway, Route 17, is located approximately 1.5 miles southeast of the site. The project would not be visible from this road.

With regard to visual impacts associated with Eversource's electrical interconnection design, the Applicant is evaluating whether a different electrical design, such as underground lines and pad-mounted equipment in lieu of pole-mounted equipment. The Council will order that the Applicant design the customer side of the electric distribution interconnection to reduce visibility to the extent feasible, including, but not limited to installation of underground lines and pad-mounted equipment on the customer side of the electrical interconnection.

Agriculture

Approximately 21.2 acres of the host property consists of cultivated agricultural fields. The site would be developed on the 10.6-acre southern field of which approximately 7.7 acres is mapped prime farmland soil.

The site parcel is not enrolled in the Public Act 490 Program which allows land to be assessed for tax purposes at its use value rather than its fair market or highest and best use value.

The majority of the host property has remained largely undeveloped and used for agriculture since the 1700s. When facility construction is complete, the northern field (10.6 acres) would continue to be used for agriculture and the southern field would be used for energy production.

On September 16, 2021, the Council received comments from DOAg that recommended an agricultural co-use plan within the fenced solar facility area. In response, the Applicant is considering an agricultural co-use within the fenced solar facility by seeding the area with pollinator grasses to support apiaries for on-site honey production or by planting low growing crops within the fenced solar facility area. The Council will order that details of any agricultural co-uses that could be implemented at the facility site, if any, be submitted as part of the D&M Plan.

Forest and Parks

The host property contains 25.7 acres of forest that is characterized as edge forest. No core forest exists on the property. The Applicant would perform selective tree clearing along Johnson Lane to prevent tree shading. No other tree clearing is proposed; however, a property survey will be conducted for any tree clearing along Johnson Lane.

The nearest publicly accessible recreational resource is the Cockaponset State Forest located approximately 0.3 mile south of the proposed solar facility. The Project would not be visible from trails within the state forest.

Wildlife

The host property is not within a DEEP Natural Diversity Database (NDDDB) area and therefore no consultation with the DEEP Wildlife Program is required.

With respect to federally-listed species, the northern long-eared bat (NLEB), a federally-listed Threatened Species and state-listed Endangered Species, occurs throughout Connecticut. However, there are no known maternity roost trees in Connecticut, and the nearest NLEB hibernacula is located approximately 9 miles away in the Town of North Branford. Due to the limited tree clearing along Johnson Lane, the Applicant conducted a US Fish and Wildlife Service (USFWS) compliance determination to determine if the project would affect NLEB. The USFWS responded indicating the project would not likely result in an adverse effect or incidental take of NLEB and would not require a USFWS permit.

Air Quality

During operation, the proposed project would not produce air emissions e.g. regulated air pollutants or greenhouse gases. The project would meet DEEP air quality standards.

During a 25-year period of operation, the solar facility would have net carbon dioxide emissions of approximately 67,120 metric tons of carbon dioxide equivalent (MT CO₂eq) or about 145.3 percent less than that of an equivalently-sized natural gas fueled facility for the same operational period.

Water Quality

The project would be designed to meet DEEP water quality standards. It would not use water during operation.

The project is not located within a DEEP-designated Aquifer Protection Area. Impacts to groundwater are not expected from construction of the project. On-site blasting to install racking posts or other infrastructure is not proposed.

The Applicant has a Water Quality Protection Plan that includes waste collection/disposal procedures, washout area procedures, and a Spill Prevention Control Plan (SPCC). Additionally, the proposed transformers and inverters would contain a biodegradable insulating oil. The Council will order that the Applicant revise the SPCC to include details of on-site fuel storage, vehicle/equipment refueling and contact information for a spill response contractor as part of the D&M Plan for the facility.

Wetlands and Watercourses

The Inland Wetland and Watercourses Act (IWWA) strikes a balance between economic activities and wetlands preservation. The impact of a proposed activity on the wetlands and watercourses that may come from outside the physical boundaries of the wetlands or watercourses is a major consideration. Defined upland review areas, such as 100 feet, provide a trigger for reviewing whether a regulated activity is likely to affect wetlands and watercourses. Under CGS §22a-41(d), regulatory agencies shall not deny or condition an application for a regulated activity in an area outside wetlands or watercourses on the basis of an impact or effect on aquatic, plant, or animal life *unless such activity will likely impact or affect the physical characteristics of such wetlands or watercourses.*

A forested wetland corridor associated with Hersig Brook is located in the central portion of the host property. The portion of Hersig Brook within the host property is not DEEP-designated coldwater habitat. No vernal pools were identified on the host property.

The solar facility would be constructed to the south and upgradient of the wetland corridor. The project would not result in any direct wetland impacts. In general, 80-foot wetland buffers would be maintained during construction except for where two sediment traps would be constructed. The construction buffers in these areas would be 35 feet (southeast sediment trap) and 50 feet (northwest sediment trap). The Council will order that the Applicant increase the buffer from the limit of disturbance associated with the southeast temporary sediment trap as part of the D&M Plan for the facility, if feasible.

Post construction, a 100-foot buffer would be maintained from the solar panels and a 50-foot buffer from a permanent water quality basin located in the southeast portion of the site.

Stormwater

Pursuant to CGS §22a-430b, DEEP retains final jurisdiction over stormwater management and administers permit programs to regulate stormwater pollution. DEEP regulations and guidelines set forth standards for erosion and sedimentation control, stormwater pollution control and best engineering practices. The DEEP Individual and General Permits for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities (Stormwater Permit) require implementation of a Stormwater Pollution Control Plan (SWPCP) to prevent the movement of sediments off construction sites into nearby water bodies and to address the impacts of stormwater discharges from a project after construction is complete. A DEEP-issued Stormwater Permit is required prior to commencement of construction.

DEEP has the authority to enforce project compliance with its Stormwater Permit and the SWPCP, including, but not limited to, the installation of site-specific water quality protection measures in accordance with the *2002 Connecticut Guidelines for Erosion and Sedimentation Control* (2002 E&S Guidelines).

The project has been designed to comply with the DEEP Stormwater Permit Appendix I - Stormwater Management at Solar Array Construction Projects, *2004 Connecticut Stormwater Quality Manual* and the 2002 E&S Guidelines. The stormwater management system design includes two swales to control runoff from Johnson Lane and one water quality basin adjacent to the east side of the solar facility.

The Applicant met with the DEEP Stormwater program in October 2021 to discuss the project. At the meeting, DEEP commented that the steep knoll on the site (with grades of 20-25 percent) may need to be re-graded to reduce the slope to a range of 5 to 10 percent to comply with the conditions of the General Permit, otherwise an Individual Permit may be required. DEEP would revisit this issue once design plans are complete. DEEP also recommend that one full growing season be incorporated into the project schedule for vegetation and stabilization of the site before the commencement of solar array construction.

Electric and Magnetic Fields

Due to the operation characteristics of the project and the connection of the project to the local distribution system, the Project would not produce electric or magnetic fields above recommended guidelines, including those of the International Commission on Non-Ionizing Radiation Protection, the International Commission on Electromagnetic Safety and the NESAC.

Cost

The project has a total estimated cost of \$4 - \$5 million.

Conclusion

Based on the record of this proceeding, the Council finds and determines that there is a public benefit for the facility. The Council also finds and determines that the proposed project is not in conflict with the policies of the state concerning the natural environment, ecological balance, public health and safety, scenic, historic and recreational values, agriculture, forest and parks, air and water purity, and fish, aquaculture and wildlife, together with all other environmental concerns, including EMF, and balanced the interests in accordance with C.G.S §16-50p(a)(3)(B) and C.G.S §16-50p(a)(3)(C). The environmental effects that are the subject of C.G.S §16-50p(a)(3)(B) can be sufficiently mitigated and do not overcome the public benefit for the facility.

The Council will require the Applicant to submit a D&M Plan for the proposed project to include, but not be limited to, a final site plan; an erosion and sediment control plan consistent with the with the *2002 Connecticut Guidelines for Erosion and Sedimentation Control* and the DEEP-issued Stormwater Permit, site construction sequence/phasing plan; final landscaping/seeding plan; operations and maintenance plan, Spill Prevention Control Plan and an agricultural co-use plan.

With the conditions listed above, the Council will issue a Certificate for the construction, maintenance, and operation of a 2.8 MW AC solar photovoltaic electric generating facility located south of Haddam Quarter Road and north of Johnson Lane, Durham, Connecticut (Town Parcel ID #18-22) and associated electrical interconnection.