DOCKET NO. 497– Burlington Solar One, LLC application for a Certificate of Environmental Compatibility and Public Need for the construction, maintenance and operation of a 3.5-megawatt AC solar photovoltaic electric generating facility located at Lot 33, Prospect Street, Burlington, Connecticut and associated electrical interconnection.	}	Connecticut
	}	Siting
	}	Council
		July 9, 2021

DRAFT Opinion

Introduction

On November 3, 2020, Burlington Solar One, LLC (BSO or 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 3.5 megawatt (MW) alternating current (AC) solar photovoltaic electric generating facility located at Lot 33, Prospect Street in Burlington, Connecticut 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 reliability[1].

The project was selected in a competitive auction under the State's low emissions renewable energy credit program (LREC) program. The purpose of the auction is to permit the development of low emission and zero emission generation technologies in Connecticut at the most cost-effective price. BSO would sell

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

renewable energy certificates (RECs) to The Connecticut Light and Power Company d/b/a Eversource Energy (Eversource). Energy produced by the project would be sold to Eversource at market rates specified in the applicable utility tariff.

The project would contribute 3.5 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 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.

BSO intends to participate in future ISO-New England Forward Capacity Auctions.

In light of Governor Lamont's Executive Order No. 3 to decarbonize the state's electric generation fleet and the project being selected in a competitive LREC/ZREC 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, Prospect Street, LLC, BSO would construct a 3.5 MW AC solar facility on a 11.58- acre site[2] located within an approximately 62.98-acre parcel. The host parcel is bordered to the south by Prospect Street and to the north and east by forested areas, residential areas and Wildcat Brook. Agricultural fields are located to the west.

The solar facility would consist of a mix of fixed, bifacial 380 Watt Trina solar panels and 400 Watt Risen solar panels. The total AC capacity at the point of interconnection would be 3.5 MW AC.

The fixed solar panels would be installed on racking systems facing the south and oriented at an angle of 25 degrees above the horizontal. The solar panels would reach a maximum height of 10 feet above grade and would have approximately 12-foot wide aisles between the panel racks.

The facility would be surrounded by an eight foot tall fence with privacy slats.

Access to the site would be via an approximately 1,400 foot long existing access road extending north from Prospect Street.

In response to comments and concerns from neighbors, the revised project involves a shift of the solar facility to the south and also increases setbacks from abutting properties to the west and north of the project. The revised project would still utilize a mix of 380 Watt and 400 Watt solar panels, but the total quantity of solar panels would decrease from approximately 12,662 to approximately 12,194.

Electrical Interconnection

A 23-kV electrical interconnection would run underground from the project transformers to an existing Eversource electrical distribution line located along Prospect Street and would generally follow the existing

[2] RCSA §16-50j-2a(29), "Site" means a contiguous parcel of property with specified boundaries, including, but not limited to, the leased area, right-of-way, access and easements on which a facility and associated equipment is located, shall be located or is proposed to be located.

access drive. Approximately nine new poles near Prospect Street approximately 40 to 45 feet tall would be required. Five poles would be installed by Eversource for its equipment, and four poles would be installed by BSO for its equipment. Such configuration would accommodate two separate connections to the existing distribution in support of the two LREC contracts.

On February 10, 2020, BSO received contingent approval from Eversource indicating that the proposed generation would not have an impact on the distribution system. The existing 23-kV distribution line along Prospect Street is not expected to require upgrades to accommodate the solar facility.

Project Alternatives

BSO considered the following factors in its site selection process:

a) Sufficient parcel size/acreage.
b) Proximity to existing electrical distribution with adequate capacity to support the project;
c) Ability to reach an agreement with landowner on lease terms that are economic for the project;
d) Land use and potential future land uses;
e) Site contours; and
f) Wetland resources.

It considered at least 12 alternative sites in the Litchfield and Hartford County areas, including, but not limited to, the Town of Burlington and the City of Bristol. All of the alternative sites were ultimately rejected due to issues such as lack of viability from an electrical interconnection perspective; topography; land use characteristics such as farmland; and ability to secure economic lease terms with the landowners. 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 public comment session via Zoom conferencing on March 23, 2021 that commenced at 6:30 p.m. During the public comment session, ten members of the public provided oral limited appearance statements with concerns including, but not limited to, the size of the facility; need for sufficient buffers from abutting properties; need for berms and landscaping and increased fence height for visual screening; and the aesthetic/visual impact of the electrical interconnection poles.

While the public comment record was open, four interested persons provided written limited appearance statements. Oral and written limited appearance statements received by the Council and comments received by BSO regarding the facility are related to concerns that include, but are not limited to, setbacks and the need for visual screening measures.

In response to neighborhood concerns, BSO increased the height of the solar facility fence from 7 feet to 8 feet and included privacy slats on all sides. It also revised its site plans to shift the solar arrays farther to the south, increasing setbacks from the northern and western property lines to allow greater forested buffers to remain. The revised project's footprint also results in a reduction in the total number of solar panels.

The Applicant has developed a landscaping plan that includes tree plantings outside of the facility fence as well as the inclusion of earthen berms. BSO is in consultation with Eversource regarding possible alternatives to interconnection-related equipment that currently require pole-mounting.

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

Public Safety

The project would comply with the National Electrical Code (NEC), the National Electrical Safety Code (NESC) and any applicable National Fire Protection Association codes and standards. The Applicant would coordinate with the Town police and fire departments regarding access to the facility and emergency shut-off switches. Each of the entrance gates to the facility would have a universal key lock (e.g. Knox lock) for emergency responders.

The Applicant is prepared to provide assistance and/or training to local emergency responders. Thus, the Council will require BSO offer training to local emergency responders.

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's solar panels and inverters have an anticipated life of 35 years. 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 Trina and Risen 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.

Environmental

Historic and Archaeological Resources

According to State Historic Preservation Office (SHPO) records, the Bristol Copper Mine, a previously identified archeological site, and Hart's Corner, a district identified on the National Register of Historic Places (NRHP), are within 1 mile of the project area. A Phase 1B field survey of the site found no areas of archaeological significance that were eligible for listing on the NHRP.

By letter dated April 8, 2020, SHPO determined that no historic properties would be affected by the project, 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.

A state-designed scenic roadway, Route 69, is located approximately 0.7 mile to the west of the site. The project is not expected to be visible from this road.

The nearest publicly accessible recreational resource is the Nassahegon Forest Trail located approximately 0.63 mile northwest of the proposed solar facility. Additionally, the Sessions Wildlife Management Area

is located approximately 0.70 mile to the southwest of the proposed facility. The facility is not expected to be visible from either of these locations.

A wooded buffer would be maintained between the solar field and neighboring properties to the north and west. Although this wooded buffer would help to diminish potential views of the project from these properties, the Applicant would install landscaping consisting of native evergreen species along the perimeter fence to enhance project screening. The plantings would consist of native evergreen species such as White Pine or Norway Spruce. Earthen berms would be constructed in select locations along the northern and western sides of the facility near abutting properties to provide for additional project screening.

The Council will require that a final landscaping plan be included within the D&M Plan that includes landscape planting, berm, and final seed mix details.

With regard to visual impacts associated with Eversource's electrical interconnection design, BSO and Eversource are evaluating pad-mounted equipment in lieu of pole-mounted equipment, and the possibility of relocating some of the equipment farther away from Prospect Street. The Council recommends that BSO consult with Eversource to reduce the visual impact of the interconnection.

Agriculture

Neither the site parcel, nor any portion thereof, is part of the Public Act 490 Program.

On June 15, 2020, in Petition 1437, DOAg submitted correspondence indicating that the originally proposed facility would not have a material impact on the status of prime farmland. The project (as originally proposed or revised) would not be located on mapped Prime Farmland Soils. Thus, the project is not expected to materially impact the status of prime farmland.

Forest and Parks

The Nassahegon State Forest is located approximately 0.85 mile north-northeast of the facility. The facility is not expected to be visible from this state forest.

On December 1, 2020, in Petition 1437, DEEP issued a determination that the project would have a material impact on the status of core forest. DEEP noted that the project would result in 6.98 acres of core forest clearing and a conversion of an additional 7.41 acres of core forest to edge forest. DEEP noted that although the wetland/watercourse buffers proposed for the project may be sufficient to protect water quality, the presence of the Eastern Box Turtle (EBT) is indicative of high-quality core forest habitat. DEEP expressed further concern that development of the project would have the effect of narrowing the riparian buffer adjacent to Wildcat Brook and could isolate contiguous forest located to the north from the forested areas to the south. To address these concerns, DEEP recommended a 300-foot wide buffer along the Wildcat Brook riparian corridor.

An analysis of the existing forested area by the Applicant using mapping and aerial photography resources determined that the forest located on the project site is part of a southerly extension of a larger forest block that extends from the north, generally following the course of Wildcat Brook. Although this southern extension consists primarily of edge forest, a 22.66 acre core forest exists that is partially located on the host parcel. The project would result in the clearing of approximately 6.98 acres of core forest and the conversion of another 7.41 acres of core forest to edge forest, leaving an approximate 6.98 acre core forest mostly located east of Wildcat Brook. The total amount of tree clearing for the revised project would be 14 acres.

The Council notes that after the project is constructed, a 192-foot wide riparian corridor would remain along Wildcat Brook on the host property, maintaining connectivity to the state forest to the north. Additionally, the revised project would have a net reduction of forest impacts as compared to the originally proposed project due to about 12.5 percent less forest clearing area. With respect to the EBT, riparian forests and core forests are not required habitat for EBT, although EBTs can utilize such types of forest. To enhance habitat for the EBT, as well as for other species, BSO would re-vegetate disturbed areas with a wildlife friendly seed mix.

Wildlife

On January 12, 2020, DEEP issued its preliminary Natural Diversity Database (NDDB) assessment that identified 14 state-listed plant and animal species that occur within or near the boundaries of the site: ground beetle (two different subspecies); pitcher plant moth; crimson-ringed whiteface; eastern pearlshell; mud sedge; hare's tail; pod grass; northern yellow-eyed grass; American bittern; whip-poor-will; slimy sculpin; eastern hognose snake (EHS); and EBT.

On September 28, 2020, BSO submitted to DEEP NDDB a Natural Resource Assessment Report (NRAR) to address the state-listed species identified by DEEP. The NRAR included a botanical assessment; an invertebrate habitat assessment; a whip-poor-will survey; and an amphibian and reptile survey. The NRAP notes that the EBT, a Species of Special Concern, was the only state-listed species observed at the site.

By letter dated January 7, 2021, DEEP issued its final NDDB determination. DEEP concurred with the NRAR and recommended the implementation of protective measures for the EBT. The Council will require that the Applicant provide a final EBT and EHS protection plan be included in the Development and Management Plan (D&M Plan).

In the final NDDB determination, due to the proximity of Wildcat Brook and Whigville Brook, DEEP also requested that BSO consult with a DEEP Fisheries biologist regarding the slimy sculpin, a state-listed Species of Special Concern. Subsequently, BSO reached out to DEEP Fisheries Division, but as of April 13, 2021, it had not yet received a response.

Although no response for DEEP fisheries was received, the project is designed to maintain a 192-foot buffer to Wildcat Brook and a 750-foot buffer to Whigville Brook. These buffers exceed the minimum 100-foot buffer recommended in the *2004 Connecticut Stormwater Quality Manual* to protect stream water quality and temperature.

With respect to federally-listed species, the northern long-eared bat (NLEB), a federally-listed Threatened Species and state-listed Endangered Species, is known to occur in the vicinity of the site. However, there are no known maternity roost trees in Connecticut, and the nearest NLEB hibernacula is located approximately 18 miles away in the Town of Morris.

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 20-year period of operation, the solar facility would have net carbon dioxide emissions of approximately 30,934 metric tons of carbon dioxide equivalent (MT CO_2eq) or about 85.6 percent less than that of an equivalently-sized natural gas fueled facility for the same operational period.

Water Quality

The project would meet DEEP water quality standards.

The project would not be located within a DEEP-designated Aquifer Protection Area.

Groundwater impacts are not expected to result from construction of the project.

The Applicant has a Petroleum Materials Storage and Spill Prevention Plan. The Applicant would also utilize a biodegradable transformer insulating oil. The Council will require that an amended Petroleum Materials Storage and Spill Prevention Plan that includes the response to a leak and/or spill of the transformer insulating fluid and site contact and emergency contact information be included in the D&M Plan.

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 total of three wetlands and two watercourses are identified within the project's study area. The project would not result in any direct wetland impacts. The nearest wetland to the revised project area, a riparian wetland located along Wildcat Brook (Wetland 1), is 111 feet to the east. The nearest watercourse, Wildcat Brook, is 192 feet to the east. Although the wetland/watercourse buffers for the revised project were reduced for one of the wetlands (Wetland 2) from 666 feet to 295 feet and from 1,021 feet to 750 feet to Whigville Brook, the Council does finds that these buffer reductions are not significant given the distances. To protect wetland and watercourse resources, BSO would utilize erosion and sedimentation control measures per the 2002 E&S Guidelines to avoid adverse effects to these resources.

Vernal Pools

Vernal pool surveys were conducted between late March through early June 2019. One potential vernal pool was identified in Wetland 1, but it was determined that it does not function as a vernal pool. Thus, no vernal pools occur near or in the project area.

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 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 Individual or General Permit and the SWPCP, including, but not limited to, the installation of site-specific water quality protection measures in accordance with the 2002 E&S Guidelines.

The project has been designed to comply with the *2004 Connecticut Stormwater Quality Manual* and the *2002 Connecticut Guidelines for Erosion and Sedimentation Control* (2002 E&S Guidelines).

BSO's stormwater system is designed to slow the release of water such that it would not increase peak flow rates.

In December 2020, the Applicant met with DEEP Stormwater Division to discuss the project's compliance with the final draft of Appendix I. Subsequent to such consultation with DEEP and prior to submitting its application for a DEEP Stormwater Permit, the Applicant provided a separate detail sheet for each basin.

EMF

Operation of the facility would result in electric and magnetic fields (EMF) derived from the DC solar panels; the DC cables connecting the solar arrays to the inverters; the inverters that convert DC power to AC power; the underground 23-kV interconnection; and the existing Eversource 23-kV distribution line along Prospect Street.

Scientific evidence indicates that exposure to electric fields (EF), beyond levels traditionally established for safety, does not cause adverse health effects, and as safety concerns for electric fields (EF) are sufficiently addressed by adherence to the NESC, as amended, health concerns regarding EMF focus on magnetic fields (MF) rather than electric fields.

The solar panels and DC cables would produce static (or 0 Hz) magnetic fields, but would not be expected to produce any disturbance to the existing levels of static magnetic fields that are produced by the earth's geomagnetic field. The existing levels of the earth's geomagnetic field are about 8,000 times lower than the standard for exposure of the general public to static magnetic fields recommended by International Commission on Non-Ionizing Radiation Protection (ICNIRP).

The inverters would produce AC magnetic fields at frequencies greater than 60 Hz close to the inverters on site, but this would be localized and not an important contribution to AC magnetic fields offsite.

At maximum project output, the current carried by the underground interconnection would be a weak source of MF. It would not be a source of EF.

The additional current injected into the existing 23-kV distribution line along Prospect Street would not be expected to increase the post-construction MF levels outside of the range of distribution lines and would be far below the MF limits specified by the ICNIRP.

The Council is satisfied that the project's EMF have been demonstrated to be below recommended exposure standards established by the International Commission on Non-Ionizing Radiation Protection and the International Committee on Electromagnetic Safety and are not of a concern.

Cost

The project has a total estimated cost of $4.53M. The use of bifacial solar panels does not materially affect this total. The revisions to the project are not expected to affect the total project cost.

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 revised 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 BSO to submit a D&M Plan for the revised proposed project to include, but not be limited to, final site plan; an erosion and sediment control plan consistent with the 2002 E&S Guidelines *2002*; site construction sequence/phasing plan; final landscaping plan; and final EBT and EHS protection plan.

With the conditions listed above, the Council will issue a Certificate for the construction, maintenance, and operation of a 3.5 MW AC solar photovoltaic electric generating facility at Lot 33, Prospect Street, Burlington, Connecticut and associated electrical interconnection.