

PETITION NO. 1310 - Quinebaug Solar, LLC petition for a } Connecticut
 declaratory ruling that no Certificate of Environmental }
 Compatibility and Public Need is required for the proposed } Siting
 construction, maintenance and operation of a 50 megawatt AC solar }
 photovoltaic electric generating facility on approximately 561 acres } Council
 comprised of 29 separate and abutting privately-owned parcels }
 located generally north of Wauregan Road in Canterbury, }
 Connecticut and south of Rukstela Road and Allen Hill Road in }
 Brooklyn, Connecticut. } December 7, 2017

Opinion

Introduction

On June 15, 2017, pursuant to Connecticut General Statutes (CGS) §§16-50k and 4-176, Quinebaug Solar, LLC (QS or Petitioner) submitted a petition to the Connecticut Siting Council (Council) for a declaratory ruling that no Certificate of Environmental Compatibility and Public Need (Certificate) is required for the construction, maintenance and operation of an approximately 50 megawatt (MW) alternating current (AC) solar photovoltaic generating facility located on approximately 561 acres comprised of 29 separate and abutting privately-owned parcels located generally north of Wauregan Road in Canterbury, Connecticut and south of Rukstela Road and Allen Hill Road in Brooklyn, Connecticut.

As it applies to this petition, CGS §16-50k¹ states in relevant part, “...the Council shall, in the exercise of its jurisdiction over the siting of generating facilities, approve by declaratory ruling... (B) the construction or location... of any grid-side distributed resources project... with a capacity of not more than sixty-five megawatts, as long as such project meets air and water quality standards of the Department of Energy and Environmental Protection.” The project would be a “grid-side distributed resources” facility, as defined in CGS §16-1(a)(37), and it would have a capacity of approximately 50 MW².

On November 12, 2015, pursuant to Section 1(c) of Public Act (PA) 15-107 and Sections 6 and 7 of PA 13-303, the Department of Energy and Environmental Protection (DEEP) issued notice of a Request for Proposals (RFP), in coordination with Rhode Island and Massachusetts, for Class I renewable energy sources (Tri-State RFP). The proposed project was submitted in response to the Tri-State RFP. On June 27, 2017, DEEP issued its final determination in the RFP and selected 9 out of 31 proposed projects to enter into long-term power purchase agreements (PPA) with the electrical distribution companies for a combination of energy and environmental attributes. Of those projects selected, one was the approximately 50 MW Quinebaug Solar Project in Connecticut (the proposed project). QS entered into a PPA with Connecticut and Massachusetts utilities for the sale of electricity and renewable energy credits (as an environmental attribute). About 50 percent of the electricity would be sold to Connecticut utilities, and the remaining 50 percent would be sold to Massachusetts and Rhode Island utilities.

Public Benefit

Pursuant to CGS §16-50p, 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 electricity. PA 05-1, An Act Concerning Energy Independence, portions of which were codified in CGS §16-50k, established a rebuttable

¹ CGS §16-50k was modified by Public Act 17-218 effective July 1, 2017. Public Act 17-218 does not apply to the proposed project because the petition was received by the Council on June 15, 2017 and it was selected by DEEP in a solicitation issued prior to July 1, 2017.

² At the point of interconnection, the project would produce about 49.5 MW, taking into account losses.

presumption that there is a public benefit for electric generating facilities selected in RFPs. This project was selected in a Tri-State RFP.

Proposed Project

QS' project would consist of the installation of approximately 191,000 solar photovoltaic panels and associated ground equipment on approximately 561 acres that span two municipalities: Brooklyn and Canterbury. The subject property is comprised of 29 parcels. 27 of the parcels are owned by River Junction Estates, LLC. One parcel is owned by Founders Bee Property and Investments, and one parcel is owned by Canterbury Sand and Gravel, LLC. QS has secured the land via an Option to Lease.

The proposed site consists of gently rolling hills, large level areas, and a few moderately to steeply sloping areas that currently contain a combination of previously developed areas, overgrown former pasture lands, early successional woodlands, invasive species, open gravel mines, and agricultural fields.

Land uses to the south of the proposed site include gravel mining, residential development, forested undeveloped land, and agriculture. The Quinebaug River and the DEEP Quinebaug Valley Trout Hatchery are located to the southeast. Immediately to the east of the proposed site is undeveloped forested land. Farther to the east along Christian Hill and Maynard Road, the current land use is residential. Land uses to the north of the proposed site include agricultural land, forested undeveloped land, and single-family residential uses. Land uses to the west of the proposed site include gravel mining (to the northwest), forested undeveloped land, and agriculture.

The project area, including the solar field, equipment pads, and access roads, would be located on 270 acres of the subject parcels. Associated project equipment includes up to 21 inverters and transformers on concrete pads. The solar field would be enclosed by a seven-foot high chain link fence with a six-inch gap between the bottom of the fence and grade to allow for wildlife passage.

During construction, QS proposes to access the site from the existing southern portion of the project area, off of Wauregan Road in Canterbury. Troy and Meghan Sposato, a party to this proceeding, live near the southern access road and are concerned about the use of that access road for construction. QS has considered alternative construction access to mitigate potential impacts to neighbors such as the Sposatos. While it is QS' preference to utilize the existing southern access for construction as much as possible, QS could potentially utilize a northern access partially as well. This would reduce the amount of construction traffic along the main access road to the south near the Sposatos' residence.

A series of gravel access roads would be constructed within the proposed project development area to provide access to the arrays, Project Transformer and inverter/transformer stations. QS would utilize existing access to the extent practicable. The proposed access roads would be approximately 15 feet wide and a total of 3.37 miles in length. Such access would be comprised of an improved subgrade and approximately six inches of processed gravel placed above existing grades.

Electrical Interconnection

The project would include an approximately 38,150 square foot utility substation (Utility Substation) that would be located south of Wauregan Road and directly east of the existing Eversource 115-kV electric transmission line right-of-way (ROW). The Utility Substation would include a Project Transformer to raise the 34.5-kV output voltage of the solar field to the transmission voltage of 115-kV. The Utility Substation would have an eight-foot tall fence with one-foot of barbed wire. The Utility Substation would connect to the closer of the two 115-kV circuits that are located in the ROW.

As of August 22, 2017, the electric transmission System Impact Study has been completed, and the Interconnection Agreement between the Petitioner, ISO-NE and Eversource is currently in draft form. In addition, the ISO-NE Transmission and Stability Task Forces have recommended that the ISO-NE Reliability Committee (Reliability Committee) issue a finding of no significant adverse impact to the transmission system due to the proposed project's interconnection. Such final determination by the Reliability Committee is pending.

Project Alternatives

QS investigated alternative site parcels that were greater than 50 acres in size and located within one mile of existing 115-kV electrical transmission infrastructure. QS also investigated brownfield sites, but brownfield sites are not typically large enough to host a project of this size and they are often not found in close proximity to electrical infrastructure.

In its July 17, 2017 letter to the Council, the Department of Agriculture (DOAg) suggested a "clustered development" with rooftop solar on a portion of the property with the remaining farmland, forestland and wetlands protected with a conservation easement might be a more preferable alternative. However, QS responded that such an alternative use is not proposed by the property owner or the developer. The property could be developed for any permitted use.

With regard to an alternative to possibly reduce the physical size and capacity of the project to increase wetland buffers, the record reflects that QS believes that the proposed project is the best that it can achieve based on its commitment under its PPA. The record also reflects that QS believes it has minimized the land area necessary to achieve its electrical capacity target.

Public Safety

The proposed project would comply with applicable codes and standards, including, but not limited to, the National Fire Protection Association, National Electrical Code and National Electrical Safety Code. QS would provide first responders from the Towns of Brooklyn and Canterbury with information and training with regard to response to emergencies at photovoltaic facilities. Each inverter would have a disconnect switch that would be clearly marked for use in an emergency. The facility would be remotely monitored through a data acquisition system and would feature remote shutdown capabilities.

The design wind speed for the solar panels with vertical post foundations is 119 miles per hour. The racking system supporting the solar panels would be designed to accommodate the maximum snow load expected for the location in accordance with the State Building Code. Decommissioning of the project at the end of its useful life would include plant infrastructure removal plans and site restoration plans.

The Wauregan Heliport is located approximately 2 miles east of the proposed site in the Town of Plainfield. The Federal Aviation Administration (FAA) issued Determinations of No Hazard to Air Navigation for the proposed project and no marking or lighting is required for aviation safety. An FAA Obstruction Evaluation Specialist was consulted to confirm that a glare analysis is not required.

The sources of noise for the proposed project would be from the up to 21 inverters and the substation power transformer. The noise assessment study for the proposed project concluded that the proposed facility would be in compliance with the DEEP Noise Control Standards.

Environmental

Historic Resources

The nearest historic resource listed on the National Register of Historic Places is the Wauregan Historic District (WHD) located approximately 0.5 miles east of the proposed project. The project would not be visible from the WHD due to distance and terrain.

The State Historic Preservation Office (SHPO) has noted that no properties listed on the National Register of Historic Places (NRHP) have been documented within or immediately adjacent to the project. However, several archeological sites have been recorded along the edges of the project area such as a historic cemetery, agricultural complex (e.g. Mowrey House) and residential building (i.e. Butts/Cady/Harris House). SHPO finds the submitted map to avoid impacts to these resources acceptable. The Petitioner would plan to conduct necessary archaeological surveys once guidance from SHPO is provided to them.

Visibility

QS proposes to plant vegetative screening to mitigate potential visual impacts in the following locations: along Wauregan Road (in the vicinity of Liepis Road) and along Liepis Road in the southeastern portion of the site (in Canterbury), and along portions of Allen Hill Road and Rukstella Road in the northern portion of the proposed site (in Brooklyn). In response to public outreach to abutters, QS increased the proposed vegetative screening to the west of Liepis Road. The Council also notes that the top of the solar panels would be approximately seven feet above grade. This would be similar to the height of the proposed seven-foot tall chain link fence (plus the six-inch wildlife gap) and comparable to the inverter and transformer heights of seven to eight feet. Thus, the proposed solar facility would not significantly protrude above the top of the fence line. The solar panels would be black with an anti-reflection coating on the glass. No direct or sky-reflected glare is anticipated as part of this project. The Council believes that all of these design features would reduce the visual impacts on surrounding neighbors.

Agriculture and Soils

The state has not purchased any development rights to the proposed site nor is the proposed site part of the Public Act 490 Program. Portions of the project area are currently used for agricultural purposes by third parties. In its letter dated July 17, 2017, DOAg expressed concern that the proposed project is incompatible with the goals of the state to keep agriculture viable; it would take agricultural lands out of production and damage soil resources. The area of estimated disturbance for the proposed project would include an approximately 1.6 acre area of mapped prime farmland soils. The Petitioner proposes to reduce impacts to agricultural soils through implementation of a Soil Mitigation Plan. Following the decommissioning of the project, farmland soils would be restored to pre-existing conditions to the greatest extent possible. The Council believes that implementation of QS' Soil Mitigation Plan during construction and decommissioning would reduce any of the potential impacts to mapped prime farmland soils.

Wildlife

The Quinebaug River Wildlife Management Area (QRWMA) and the Quinebaug Fish Hatchery are located southeast of Wauregan Road in the vicinity of the project site. The QRWMA contains two agricultural fields cultivated by a local farmer and also supports turkey, small game, waterfowl and deer hunting, trapping, fishing, wildlife observation, hiking and horseback riding. The project is not expected to have any impact on the QRWMA.

In an October 7, 2016 preliminary Natural Diversity Database (NDDDB) assessment letter to QS, the DEEP Wildlife Division identified four mammal species, two bird species, two reptile species, two amphibian species, one fish species, one invertebrate species and two plant species as potentially occurring on the project site. The two reptile species identified in the October 7, 2016 NDDDB letter, the eastern ribbon snake and the eastern hognose snake, are state-listed special concern species. The two amphibian species identified in the October 7, 2016 NDDDB letter, the pure diploid blue-spotted salamander and the eastern spadefoot toad, are state-listed endangered species.

The petition indicates QS detected the presence of two state-listed endangered bat species on the site during an acoustic survey. However, as of September 14, 2017, the acoustic survey results had not been submitted to DEEP. In the October 7, 2016 letter, DEEP requested documentation of field surveys, or in the alternative, protection strategies for each identified species, but also as of September 14, 2017, the field survey documentation or identified species protection strategies had not been submitted to DEEP.

Air Quality

The project would have no adverse effect on air quality. During operation, the proposed project would not produce air emissions of regulated air pollutants or greenhouse gases. Thus, no air permit would be required. The proposed project would meet DEEP air quality standards. Given the loss of carbon dioxide sequestration over the life of the facility due to tree clearing and the carbon dioxide emitted from the manufacture of the solar equipment versus the net carbon dioxide emissions reduction resulting from the solar facility displacing existing fossil fueled generation in the grid portfolio, the “carbon debt payback period” would be approximately seven years.

Water Quality

Wetlands and Watercourses

There are 16 wetland areas within the properties that comprise the project. The project was generally designed to avoid wetlands, watercourses and vernal pools through a 50-foot buffer. A complex of interconnected wetlands, streams and vernal pools was identified along and outside of the western boundary of the project area associated with Blackwells Brook. The project was designed to maintain a 75-foot buffer from Blackwells Brook and a 100-foot buffer from the vernal pool in this area. The Council finds these buffers insufficient to protect the wetlands and thereby meet the goals of the state Inland Wetland and Watercourses Act (IWWA).

The 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*. Loss or negative impact on a wildlife species may have negative consequential effects on the physical characteristics of wetlands.

Certain types of species, such as wood frogs, a species found to occur on the site during a field survey; pure diploid blue-spotted salamanders, an endangered species identified by DEEP as having the potential to occur on the site; and the eastern ribbon snake, a special concern species identified by DEEP as having the potential to occur on the site, need upland wooded areas extending at least 750 feet from the edge of the vernal pool for their life cycles. The petitioner concedes that the eastern ribbon snake uses aquatic habitats and surrounding upland shrub areas for the completion of its life cycle. Impacts to these species result in

impacts to wetlands. Therefore, it is important to consider the life cycles of these species in relation to wetlands. The record demonstrates that species of amphibian life occurring at the site, or potentially occurring at the site, contribute to the life cycle of the wetlands and bear a direct relationship to the quality of the water.

Vernal Pools

There are 8 vernal pools within the properties that comprise the project. Three vernal pools involve project development proposed within the vernal pool envelope and all of the vernal pools involve more than 25% post construction development of the critical terrestrial habitat zone around the vernal pools. Calhoun and Klemens Best Development Practices for Conserving Pool-Breeding Amphibians in Residential and Commercial Developments in the Northeastern United States recommend no development within the 100-foot vernal pool envelope and no more than 25% development may occur within the 750-foot critical terrestrial habitat. QS concedes that development of the proposed project would impact the envelopes around the vernal pools on the properties. QS also concedes that there is no substitute for site-specific surveys.

Vernal pool surveys were conducted in 2016, but they focused on identifying the locations of vernal pools on the properties rather than a comprehensive assessment of biota within the vernal pools and adjacent terrestrial habitat. Vernal pool assessments for blue-spotted salamanders were conducted using dip nets rather than minnow traps. According to the petitioner, eastern spadefoot toads were not observed during the field surveys, yet pit fall traps or night time surveys were not employed to determine the presence of eastern spadefoot toads. Eastern spadefoot toads are most productive on agricultural land and in active gravel extraction areas that are comprised of Hinckley soils. The site property contains agricultural land and an active gravel extraction area that contain Hinckley soils. Specifically, about 18% of the proposed work area is comprised of Hinckley soils.

The Connecticut Association of Wetlands Scientists Vernal Pool Monitoring Protocol provides guidance related to the timing of vernal pool surveys. The timing of the first call from wood frogs has a direct correlation to the timing of subsequent surveys for other species. The petitioner does not know when the wood frogs started to call in 2016, but during vernal pool surveys, wood frog egg masses were observed in one vernal pool and wood frog tadpoles were observed in another vernal pool.

Wood frogs are a keystone species in terms of wetland cycles. Loss of wood frogs could have negative consequential effects on the physical characteristics of wetlands, such as impacts to water quality of vernal pools if wood frogs were eliminated from breeding within them. A substantial reduction in the capacity of the wetlands to sustain biological life and the clearing of forests would greatly reduce the capacity for survivorship of amphibians and adversely affect the nutrient and energy recycling within the wetlands. Due to the lack of the site-specific vernal pool surveys, the Council finds that there are incomplete biological data for these vernal pools upon which to make an informed decision.

Stormwater

The Petitioner believes that minimal ground alteration is proposed, and generally materials removed would be used as fill so that no fill materials would be removed or added to the site. The Petitioner asserts that minor grading may be required along proposed access roads and for equipment pads in select locations based on topography. However, adequate site grading details were not provided as part of the record in this proceeding.

The Petitioner claims that the project has been designed to comply with the 2002 *Connecticut Guidelines for Soil Erosion and Sediment Control*. While "Erosion Control Barrier" was noted on the site plans provided in the

petition, no information was provided about those barriers. Therefore, the Petitioner did not provide enough information to determine the potential effectiveness of the barriers.

The Petitioner also claims that the project has been designed to comply with the *2004 Connecticut Stormwater Quality Manual*. QS stated it would comply with the recommendations from DEEP outlined in “Stormwater Management at Solar Farm Construction Projects” dated September 8, 2017. In accordance with DEEP General Permit guidelines, stormwater design components would be installed in five-acre stages to control stormwater flows onto adjacent properties during construction. However, the record indicates the Petitioner would install the project in a continuous process and allow one to two days for clearing and site stabilization of a five acre area before moving one to the next five acre area. The Council finds it unlikely that a five acre area can be cleared, grubbed and stabilized properly in a one to two day timeframe. Thus, the Petitioner has not demonstrated compliance with the *2004 Connecticut Stormwater Quality Manual*.

Conclusion

The Council finds that the petition is deficient in terms of plans for grading, erosion and stormwater control. Development of the project, as proposed, would result in development of 270 acres of a combination of early successional woodlands, gravel mines and agricultural fields. The Petitioner claims the project has been designed to comply with the *2002 Connecticut Guidelines for Soil Erosion and Sediment Control* and to comply with the *2004 Connecticut Stormwater Quality Manual*. However, there is no information regarding site grading and erosion barriers nor is the “continuous process” of clearing and stabilizing 5-acre increments at a time over one or two days for stormwater control well-defined. Without sufficiently detailed information regarding grading, erosion and stormwater control, the Council is concerned about stormwater management, sedimentation impacts to wetlands and watercourses that are in close proximity to the limits of disturbance and the resulting detrimental effect on water quality.

The Council further finds that, as proposed, the project will have an adverse effect on water quality. The project design includes inadequate buffer areas around wetlands and vernal pools. As proposed, the project involves disturbance within the 100 foot vernal pool envelope and more than 25% development within the 750 foot critical terrestrial habitat. The record contains substantial evidence demonstrating that species occurring, or potentially occurring, at the site contribute to the life cycle of the wetlands. The magnitude of the land disturbance associated with the proposed project site could alter the wetland ecology. Although QS concedes that development of the proposed project would impact the envelopes around the vernal pools on the site and concedes that there is no substitution for site-specific surveys, the failure to adequately respond to DEEP’s October 7, 2016 request for site-specific surveys for both wetland and non-wetland dependent species or protection measures makes it unacceptable to issue a declaratory ruling.

Based on the record in this proceeding, the Council finds that there would be a substantial adverse environmental effect associated with the construction, maintenance and operation of an approximately 50 MW Solar Photovoltaic Project on 29 separate and abutting privately-owned parcels located generally north of Wauregan Road in Canterbury, Connecticut and south of Rukstela Road and Allen Hill Road in Brooklyn, Connecticut. Although the proposed project is a grid-side distributed resources project with a capacity of less than 65 MW under CGS §16-50k, it was selected through a Tri-State RFP under CGS §16a-3f, and it is consistent with the state’s energy policy under CGS §16-35k, due to the deficiencies in the environmental surveys and stormwater plans identified above, the proposed project would not meet all applicable U.S. Environmental Protection Agency and DEEP Water Quality Standards. Therefore, the Council will not issue a declaratory ruling for the proposed project and will deny the petition without prejudice.