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.	}	Connecticut
	}	Siting
	}	Council
		April 25, 2019

Opinion

Introduction

On October 19, 2018, pursuant to Connecticut General Statutes (CGS) §§16-50k and 4-176, Nutmeg Solar, LLC (Nutmeg 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 19.6 megawatt (MW) alternating current (AC) solar photovoltaic generating facility located on approximately 162 acres 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.

As it applies to this petition, CGS §16-50k[1] 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 and the Council does not find a substantial adverse environmental effect…" 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 19.6 MW.

On March 9, 2016, pursuant to Section 1(b) and 1(c) of PA 15-107, DEEP issued notice for Request for Proposals (RFP) for Class I renewable energy sources and Class III sources with a nameplate capacity rating of more than 2 MW and less than 20 MW (Small Scale RFP). Project selection occurred on November 28, 2016. On June 27, 2017, DEEP issued its final determination in the RFP and selected 25 out of 107 proposed projects to enter into long-term power purchase agreements with the electrical distribution companies (EDCs) for a combination of energy and environmental attributes. Of those projects selected, one was the approximately 19.6 MW Nutmeg Solar Project in Enfield. Nutmeg entered into power purchase agreements (PPAs) with the following Connecticut utilities: The Connecticut Light and Power Company d/b/a Eversource Energy (Eversource) and The United Illuminating Company (UI) for the sale of electricity and renewable energy credits.

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

[1] The proposed project was selected by DEEP in a solicitation before July 1, 2017; thus, the proposed project is expressly exempt from the requirement set forth in CGS §16-50k(a) regarding written representation from DEEP that the proposed project will not materially affect core forest or written representation from DOAg that the proposed project will not materially affect prime farmland.

presumption that there is a public benefit for electric generating facilities selected in RFPs. This project was selected in the Small Scale RFP[2].

Proposed Project

The proposed project consists of the installation of approximately 72,520 fixed solar panels at approximately 400 Watts direct current (DC) each (for a total of about 29.0 MW DC) and associated ground equipment and electrical interconnection on approximately 162 acres in Enfield. The Petitioner secured the nine parcels of land (collectively, the "subject property") using a combination of lease and option to purchase agreements. Specifically, three parcels would be leased from Jarmoc Farms, LLC and Jarmoc Real Estate, LLC; one parcel would be leased from David and Donna Waleryszak; three parcels would be purchased from Laura Jarmoc; and two parcels would be purchased from James Lefebvre.

The proposed site is located in a mixed rural and agricultural area, with residential homes generally located to the north and west of the site. Eversource's Scitico Substation is also located to the north. A locally-owned orchard is located to the northeast, and an active concrete batch plant is located immediately southeast of the proposed site (and to the west of Broad Brook Road). An inactive railroad line is located on the west side of Broad Brook Road. The Scantic River is located north of the proposed site across Bailey Road.

The proposed solar panels would be oriented at an angle of 25 degrees above the horizontal. The proposed project would include an approximately 15-foot wide aisle between solar racking systems, to minimize row to row shading and allow for necessary maintenance access.

There would be up to 14 inverters to convert the DC power produced by the solar panels to AC power. Each inverter would have a transformer to raise the AC output voltage to 34.5 kilovolts (kV). The inverters and transformers would be approximately 7-8 feet high and 6-7 feet high, respectively. The inverter and transformer pairs would be located on equipment pads.

The proposed project would include two solar array areas known as the Western Array (approximately 6.2 MW AC) and Eastern Array (approximately 13.4 MW AC). This results in a total of approximately 19.6 MW AC at the point of interconnection.

Most of the development area of the proposed project would be enclosed by a 7-foot tall perimeter chain link fence, with a six-inch gap at the bottom to allow for passage of wildlife. Approximately 3,800 linear feet along the proposed project's western boundary would utilize a 7-foot tall wide-gauge agricultural fence (to enhance aesthetics). The agricultural fence would have a six-inch gap at the bottom to allow for the passage of wildlife.

A series of gravel access roads (totaling approximately 1.4 miles) would be constructed within the proposed project development area to provide access to the solar arrays, substation, and centralized inverter/transformer stations. The majority of the proposed access roads would be approximately 16 feet wide[3]. Access roads would be comprised of a 12-inch thick crushed stone base and a 4-inch thick traffic bound gravel surface.

The primary access to the proposed facility site during construction and operations would be from Broad Brook Road. For emergency purposes only, a secondary access point would be located along an existing driveway from Bailey Road, north of the proposed site.

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[2] While the project site was also selected in the Tri-State RFP, a determination was made to go forward with the Small Scale RFP and not the Tri-State RFP.

[3] At the proposed substation location, the access road would be approximately 20 feet wide for a short section to provide a turning radius necessary for component delivery.

Electrical Interconnection

The 34.5-kV output from the inverter/transformer pairs would be fed through underground collection cables to the proposed Collector Substation to be located within the northern portion of the Eastern Array footprint. The proposed Collector Substation would be rectangular in shape with an area of about 0.86 acres. The Collector Substation would be enclosed by an 8-foot tall chain link fence with barbed wire along the top and no wildlife gap at the bottom.

The Collector Substation would include a generator step-up transformer (GSU) to raise the voltage from 34.5-kV to 115-kV. An approximately 500-foot long single-circuit 115-kV underground transmission line would deliver the proposed project's energy from the high voltage side of the GSU to the point of interconnection (POI) at Eversource's 115-kV Scitico Substation to the north. The power from the proposed facility would leave the Collector Substation via an underground transmission line that would bring it to the 115-kV breaker bay at Scitico Substation, which would serve as the POI at which the proposed project's energy would be delivered to the ISO-New England, Inc. (ISO-NE) grid.

Eversource would design, construct, own, and maintain the underground transmission line and all modifications within the Scitico Substation. Nutmeg would design, construct, own, and maintain the Collector Substation up to the point of change in ownership located on the Collector Substation's terminal structure. The Council will require that the final details of the Collector Substation up to the point in change in ownership (from Nutmeg to Eversource) be included in Nutmeg's D&M Plan for this project. The Council recommends that Eversource file a Petition for a Declaratory Ruling for the underground 115-kV connection, any Eversource equipment in the Collector Substation (if applicable), and modifications to the existing Scitico Substation.

The proposed project's ISO-NE System Impact Study report issued on June 21, 2016 concluded that the proposed project would not cause any adverse impacts to the transmission system, and no system upgrades would be required to interconnect at the designated POI. Nutmeg entered into a small generator interconnection agreement with ISO-NE and Eversource on July 5, 2017.

Project Alternatives

The initial site selection was performed by Ranger Solar (predecessor in interest to NEER), and it used criteria consistent with NEER's typical approach to evaluating new solar sites. Such criteria include, but are not limited to the following: sufficient solar energy resource; minimal or avoidable environmental constraints; flat topography; land availability (i.e. the ability to lease or purchase land); and interconnection feasibility.

Ranger Solar considered other raw land sites in the vicinity of Eversource's Scitico Substation. However, these alternative sites were not selected due to a variety of factors such as lack of land availability (i.e. landowners unwilling to lease or sell their property), insufficient acreage to support the project, and increased distance from Scitico Substation. The Petitioner contends that the proposed site best conforms to Ranger Solar's (and NEER's) evaluation criteria.

Public Safety

The proposed project would comply with all applicable industry, state, and local codes and standards including, but not limited to, the National Electrical Code (NEC), the National Electrical Safety Code, and the National Fire Protection Association. The proposed project would be remotely monitored. The ability to isolate the entire facility would be controlled remotely by the Remote Operations Control Center, as well as the site's comprehensive relay protection system designed to automatically trip equipment off line under abnormal or malfunctioning electrical conditions.

Prior to commencing commercial operations, the Petitioner would develop a project-specific Emergency Preparedness Plan which would standardize procedures in the unlikely event of a fire or comparable event. Also prior to operation, the Petitioner would meet with the Town of Enfield's first responders to provide an orientation to the proposed project and provide information regarding response to emergencies at the project site. The Petitioner would provide training to local first responders so that site access and emergency response procedures are well understood.

First responders would have access to the project via a Knox Box Rapid Access System. Disconnect switches would be installed at ground level and be operable by anyone with access to the facility. First responders would not have the ability to shut down the entire facility, which is consistent with industry best practices. However, NEER would be in communication with first responders when they are onsite or trying to access to the site. Also, at the end of each set of combiners boxes would be a disconnect switch that first responders could turn off to ensure that area is not operational.

The proposed solar panels would be designed to withstand a wind load and snow load of about 50.1 pounds per square foot (psf) and 113 psf, respectively. The proposed racking system that would support the solar panels would be designed to accommodate the snow loads according to the International Building Code with Connecticut amendments. For this project, the design snow loading for the racking system is approximately 30 to 35 psf.

At the end of the proposed project's useful life[4], the equipment removal and site restoration activities identified in Nutmeg's Decommissioning Plan would return the proposed project site to a state capable of supporting agricultural use. In addition, the Farmland Soil Mitigation Plan provides that upon site decommissioning, disturbed farmland soils would be re-tested to ensure soil health is consistent with baseline conditions established prior to construction. See section titled "Agriculture and Soils."

Bradley International Airport is located in Windsor Locks and is approximately eight miles west of the proposed project site. The Federal Aviation Administration (FAA) issued Determinations of No Hazard to Air Navigation (No Hazard Determinations) for the proposed project No marking or lighting would be required for aviation safety.

Based on past project discussion with an FAA Obstruction Evaluation Specialist, Nutmeg contends that, if not explicitly stated by FAA (as is the case for the proposed project), a glint/glare analysis would not be required. Nutmeg also contends that there is no regulatory requirement for a glint/glare study for a project that is not located on or as part of a federally-obligated airport. Current solar panel technology and design results in as little as two percent of the incoming sunlight being reflected, depending on the angle of the sun. As a comparison, the Council notes that snow has a reflectivity of 80 percent; white concrete has a reflectivity of about 76 percent; and wood shingles have a reflectivity of 14 percent.

The sources of noise for the proposed project would be from the up to 14 inverter/transformer pairs located at various locations within the proposed solar facility footprint and the 34.5-kV/115-kV generator step-up transformer to be located at the proposed Collector Substation. The proposed facility would be in compliance with the DEEP Noise Control Standards.

Noise resulting from proposed project construction is exempt from the DEEP noise standards. Nutmeg's proposed construction hours would be Monday through Friday between 7:00 a.m. and 7:00 p.m. Saturday hours (as needed) would be between 8:00 a.m and 5:00 p.m. Due to unforeseen circumstances, some night or

[4] The end of the useful life would be determined by the Petitioner, subject to the PPA contract period or additional operating period, or the end of the property lease term.

Sunday construction hours may be required. Notwithstanding, out of consideration for the nearby residents, Nutmeg proposes to limit pile driving construction activities to the hours of 9:00 a.m. and 5:00 p.m. The Council will require that the final construction hours and days of the week be included in the D&M Plan.

Magnetic Fields

Nutmeg's proposed Collector Substation and inverter/transformer pairs would not be expected to materially affect magnetic field (MF) levels beyond the boundaries of the subject property.

The proposed modifications to Eversource's Scitico Substation would not materially affect MF levels at the boundaries of the substation property. The underground 115-kV transmission line that would be constructed and managed by Eversource would comply with the Council's Electric and Magnetic Field Best Management Practices for the Construction of Electric Transmission Lines in Connecticut. The maximum MF level over the proposed underground transmission line (under peak load conditions) would be approximately 24.4 mG. The Council notes that this would be far below the International Commission on Non-Ionizing Radiation Protection (ICNIRP) maximum exposure limit of 2,000 mG. Notwithstanding, the Council recommends that the final details of Eversource's transmission connection and Scitico Substation modifications be included in Eversource's petition filing.

Environmental

Historic and Archaeological Resources

The nearest historic resource listed on the National Register of Historic Places (NRHP) is the Somersville Historic District, located approximately 0.6 miles from the eastern limits of the proposed project site. The Hazardville Historic District, another NRHP-listed resource, is located approximately 0.9 miles from the western limits of the proposed project site. Neither historic district would be directly impacted by the proposed solar facility. The viewshed from either historic district would not be impacted by the proposed project due to the distance and the hilly and forested nature of the intervening terrain.

A Phase 1A Cultural Resources Assessment Survey Report (Phase 1A Report) was prepared by Heritage Consultants, LLC (Heritage) for the proposed project. Heritage's review identified 21 tobacco sheds, barns, shops/garages and residences in its study area and determined that none of the historic standing structures are eligible for inclusion in the NRHP. (See Figure 5 in the Council's Findings of Fact.) Heritage determined that, of the total land area under consideration for a proposed solar facility, 4.11 acres possess a moderate/high sensitivity for producing historic era archaeological resources and 51.24 acres possess a moderate/high sensitivity for producing prehistoric period archaeological resources. Accordingly, Heritage recommended that the acreage assessed as possessing moderate/high archaeological sensitivity be examined using subsurface testing as part of a comprehensive Phase 1B cultural resources reconnaissance survey (Phase 1B Survey)[5].

A Phase 1B Cultural Resources Reconnaissance Survey (Phase 1B Survey) was performed by Heritage. Planned shovel tests were performed in moderate/high sensitivity areas within the Eastern Array and Western Array areas. While all planned shovel tests were completed in the Western Array area, 14 planned shovel tests in the Eastern Array area were not performed due to steep slopes of approximately seven percent.[6] Due to the lack of cultural findings in adjacent areas with more gradual topography, it was

[5] By letter to Heritage dated November 27, 2017, SHPO noted that it reviewed the Phase 1A Report and concurred that a Phase 1B Survey should be completed prior to construction. By letter dated April 25, 2018, SHPO also concurred with Heritage that no additional work is required in areas identified in the Phase 1A Report as having low potential to yield intact archaeological deposits.

[6] Cultural materials are not typically present on slopes of seven percent or greater.

determined that test pits were not necessary at these 14 locations. Heritage concluded that no archaeological resources would be impacted by the proposed solar facility, and no additional archaeological examination of the Western Array or Eastern Array areas would be recommended[7].

Nutmeg proposes to demolish/remove Tobacco Barn No. 3, but relocate Tobacco Barn No. 2. SHPO recommended that a protection plan be formulated for the tobacco sheds located on the subject property that were initially proposed to be demolished. Nutmeg has agreed to ongoing consultation with SHPO regarding the future of the tobacco sheds.

Visibility

No direct or sky-reflected glare would be expected to affect any abutting residences. The proposed solar panels would be designed to minimize glare. Specifically, in order to limit reflection, the solar panels would be constructed of dark, light-absorbing materials and would be finished with an anti-reflective coating.

Generally, the proposed project is surrounded by an existing vegetative buffer along the northern, eastern, and southern limits of the project area. With respect to the western side of the proposed project, the Petitioner proposes to install approximately 1,570 linear feet of vegetative screening to mitigate potential visual impacts along Broad Brook Road (roughly south of Tobacco Barn No. 4), near Charnley Road and along the northwestern limits of the project development area. Such screening would primarily be intended to mitigate visual impacts to residential abutters or receptors that would have a direct view of the proposed project. Such proposed vegetative screening would consist of a total of approximately 1,334 vegetative plantings.

No vegetative screening is proposed along Broad Brook Road near the central portion of the project footprint (roughly between Tobacco Barn Nos. 4 and 1). However, to the east of the residences on Taft Lane, there is a large swath of existing vegetation that would not be affected as part of the proposed project. Also, a number of existing tobacco barns and/or buildings are proposed to remain between Broad Brook Road and the proposed fence line in the vicinity of the proposed northern main access. Thus, views of the proposed project area from the east in this vicinity would not be expected to be significantly different from what currently exists.

The Council believes that the relocation of Tobacco Barn No. 2 (along with Tobacco Barn No. 1) would have visual screening benefits near the northwestern limits of the proposed project area. The Council further notes that Nutmeg planned these relocations in response to neighborhood concerns related to visibility. Should, for example, Tobacco Barn No. 3 be preserved, then the solar panel layout would have to be adjusted accordingly. Should Tobacco Barn No. 2 not be relocated, then additional vegetative screening in the northwestern portion of the project area would be required.

The nearest public recreational area is the Scantic River State Park (SRSP) across Bailey Road to the north of the proposed site and along the Scantic River. The Powder Hollow Section of the SRSP is located approximately 0.5 miles to the northwest of the proposed site. Privately-owned parcels, site topography, and existing vegetation (located outside and inside the proposed project footprint) would prevent viewshed impacts to this recreational resource.

Temporary lighting would be used at the staging area during construction. Site lighting or overhead lighting are not proposed for the solar facility project. A small exterior motion-activated light would be installed on

[7] By letter to Heritage dated January 2, 2019, SHPO noted that it reviewed the Phase 1B Report and concurred with Heritage's finding that additional archaeological investigations of the proposed project areas are not warranted.

the control house of the Collector Substation to enable safe access in the event that work is required at the Collector Substation. Such lighting design would comply with the National Electrical Code.

The Council notes that the tallest proposed structures would be two lightning masts located at the proposed Collector Substation. Such lighting masts would be approximately 53 feet in height. The remaining components of the Collector Substation would be less than 30 feet in height. However, the Collector Substation would be located near the northern limits of the site adjacent to the existing Eversource Scitico Substation, and thus the Council believes the Collector Substation (and its components) would fit in visually within the context of such area.

Outside of the Collector Substation, the (next) tallest equipment would be the tops of the solar modules and the transformer/inverter pairs, all of which would not be expected to exceed 10 feet in height. With a fence height of about 7.5 feet[8], such equipment would extend not more than about 2.5 feet above the fence line. Thus, the Council believes that all of Nutmeg's design features, including, but not limited to, proposed vegetative screening and relocated barns, as well as the existing site features would reduce any visual impacts on surrounding neighbors and recreational areas.

Agriculture and Soils

Public Act 490 allows land to be assessed at its use value rather than its fair market or highest and best use value for purposes of local property taxation. Seven of the nine parcels that comprise the subject property are part of the Public Act 490 Program. These parcels would be reclassified if the proposed project is approved by the Council.

Two soil series mapped by the United States Department of Agriculture (USDA) National Resource Conservation Service (NRCS) within the proposed site are Haven and Enfield association and Agawam, both considered Prime Farmland Soils. There is a small pocket of Manchester soils that is considered Statewide Important Farmland Soil. The entire eastern portion of the site is mapped as Prime Farmland Soils, with the exception of the area mapped as Narragansett, extremely stony with slopes in excess of 15 percent, which separates the proposed eastern and western solar arrays. No Locally Important Farmland Soils have been mapped by USDA NRCS at the proposed site. Approximately 2.44 acres of Prime Farmland Soils and approximately 1.27 acres of Statewide Important Farmland Soils would be disturbed by the proposed project due to the installation of equipment pads, the Collector Substation, and access roads[9].

To reduce the potential impacts to agricultural soils and assure that their value is preserved during the construction, operation and decommissioning of the proposed solar project, Nutmeg has included a Soil Mitigation Plan (SMP). Under the SMP, removal of topsoil would be required in portions of the project development area where excavation or cutting would occur within the footprint of the proposed access roads, equipment pads, Collector Substation and utility trench construction activities. Removal of topsoil within the NRCS-mapped boundaries of all farmland soils, to a depth greater than eight inches, would be evaluated based on the availability of 12-inches of mineral material soils and absence of stones, cobbles and boulders. If such criteria are met, including that the proposed disturbance would be in excess of eight inches, and the area is mapped as Prime Farmland Soil or Farmland of Statewide Importance, excavated topsoil would be stockpiled.

Stockpiles would be surrounded by silt fence during construction and prior to redistribution. Temporary stabilization of farmland soils during construction would be achieved through the use of hydroseeding with a bonded fiber matrix or jute matting to limit erosion.

[8] A seven-foot fence plus a six-inch wildlife gap would result in a total height of roughly 7.5 feet above grade.
[9] Post installation for the solar racks would have a negligible effect on the total disturbed areas of farmland soils.

Once earth disturbing activities are complete, redistributed farmland soils would be permanently stabilized through use of native seed mix. Following decommissioning of the proposed project, these soils can be regraded for agricultural use. Restoration of disturbed Prime Farmland Soils and Statewide Important Farmland Soils would be initiated at the time of decommissioning. These farmland soils would be restored back to pre-determined baseline conditions to the greatest extent practicable. The restoration would be performed under the supervision and guidance of a licensed soil scientist.

The Council notes that the project is expressly exempt from the requirement set forth in CGS §16-50k(a) regarding written representation from DOAg that the proposed project will not materially affect prime farmland; notwithstanding, as a precaution, Nutmeg's SMP would protect and restore farmland soils.

Although applicable only to electric transmission line right-of-ways, CGS §16-50hh permits the Council to consider post-construction site restoration or revegetation that includes the establishment of model pollinator habitat. Of the proposed approximately 2,417 vegetative plantings, approximately 1,300 would be "pollinator-friendly" plantings. The proposed pollinator-friendly plantings in the road grading area would include Coastal Sweet Pepperbush and Highblush Blueberry. The proposed pollinator-friendly plantings as vegetative screening would include the following: Purple Coneflower; Cardinal Flower; Scarlet Beebalm; Black-eyed Susan; and Coastal Sweet Pepperbush. Final planting design would be subject to availability at the time of procurement. Accordingly, the Council will require that the final landscape planting plant (including pollinator-friendly species) be included in the D&M Plan.

Core Forest

The proposed project was selected by DEEP in a solicitation before July 1, 2017; thus, the proposed project is expressly exempt from the requirement set forth in CGS §16-50k(a) regarding written representation from DEEP that the proposed project will not materially affect core forest. Notwithstanding, the proposed project area is not currently mapped as core forest by DEEP.

Wildlife

In an August 28, 2017 preliminary Natural Diversity Database (NDDB) assessment letter to Nutmeg, DEEP identified known extant populations of 14 state-listed species within or near the boundaries of the proposed site. The 14 state-listed species referenced in the NDDB preliminary assessment letter include: big sand tiger beetle, dune ghost tiger beetle, dark-bellied tiger beetle, ground beetle, eastern pondmussel, eastern pearshell, Hooker's orchid, slimy sculpin, wood turtle, bridle shiner, savannah sparrow, vesper sparrow, eastern spadefoot toad, and eastern box turtle.

The Petitioner completed a habitat survey of the project area for state-listed species referenced in the NDDB preliminary assessment letter, as well as an eastern spadefoot toad field survey, a bat acoustical survey, and a general herpetological survey with an emphasis on wood turtles and eastern box turtles. The Petitioner identified protection measures for the species. By letter dated August 3, 2018, DEEP indicated that it concurs with the best management practices included in Nutmeg's Herpetofauna Avoidance and Mitigation Plan (HAMP) that would be implemented to protect state-listed amphibians and reptiles.

Due to past disturbance and/or lack of suitable habitat, the proposed project would be unlikely to affect any of the four state-listed beetles. Thus, no protection measures are proposed. Based on a complete lack of suitable habitat, the eastern pondmussel and eastern pearlshell (both state-listed Species of Special Concern) are unlikely to occur at the proposed site. Hooker's orchid was not found to be present at the site. Additionally, due to its extirpated status, no further avoidance and mitigation measures would be recommended.

Based on a complete lack of suitable habitat, the slimy sculpin and the bridle shiner are unlikely to occur at the proposed site. Also, Nutmeg's stormwater plan addresses potential sedimentation and erosion impacts to off-site waters.

Due to the presence of suitable foraging and nesting habitat within the study area, the savannah sparrow has the potential to occur at the proposed site. While the Savannah sparrow are unlikely to nest within the grassland areas of the proposed site, Nutmeg would implement a seasonal restriction on vegetative (e.g. tree) clearing. Specifically, such clearing would occur between October 1 and March 31, to avoid any potential impacts to this species should it occur.

Due to the routine management of the tobacco and gourd fields associated with agricultural practices within the study area and otherwise lack of suitable habitat, the vesper sparrow, a state-listed Endangered Species, is not expected to occur at the proposed site. Notwithstanding, winter tree clearing would avoid the incidental take of vesper sparrow during clearing for the proposed project. Environmental monitors would be employed during construction to monitor and communicate with the construction team any observations of such species that may occur on site.

Nutmeg performed a bat acoustic survey to determine the presence or absence of the northern long-eared bat (NLEB), a state-listed Endangered Species and a federally-listed Threatened Species. No NLEB bat passes were identified by the acoustic analysis. The bat acoustic study did identify the presence of three bat species that are state-listed Species of Special Concern: eastern red bat, hoary bat and silver-haired bat. For the protection of bat species, avoidance and mitigation measures proposed by Nutmeg include tree clearing that would be limited to October 1 through March 31. Tree clearing restrictions would also reduce potential impacts to forest dwelling and grassland-nesting bird species that may occur.

There were no observations of wood turtles or eastern box turtles (both state-listed Species of Special Concern) during the field investigations for these species. However, protection measures are proposed for these species. Specifically, Nutmeg would implement the HAMP.

Vernal pool indicator species in Connecticut include wood frog, spotted salamander, marbled salamander, Jefferson salamander complex, blue-spotted salamander complex, and pure-diploid blue-spotted salamanders. During a survey of the vernal pool, wood frog and spotted salamander egg masses were found.

Surveys were conducted to attempt to detect the presence of the eastern spadefoot toad, a State-listed Endangered Species. No eastern spadefoot toads were observed during these site surveys. The proposed solar facility site lacks Hinckley Soils, dense vegetative cover and predicted habitat in DEEP's model. However, as a precaution, for the protection of the eastern spadefoot toad, the HAMP would be implemented with similar protective measures that would be used to protect the eastern box turtle and the wood turtle.

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 first 20 years of operation of the facility due to tree clearing and the carbon dioxide emitted from the manufacturing of the solar equipment versus the carbon dioxide emissions avoided by leaving the agricultural land and forest at the site and installing an equivalent conventional natural gas-fueled generating facility, the approximate payback period was calculated to be approximately seven years.

Water Quality

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.*

There are no wetlands or streams mapped within the proposed project site. The proposed limit of work would be approximately 545 feet northwest of the nearest wetland. Aside from the identified vernal pool within the project site, the nearest watercourse, the Scantic River, is located approximately 866 feet north of the project. According to DEEP's 2017 Integrated Water Quality Report, the impairments observed in the Scantic River include Escherichia coli, with potential sources including stormwater, insufficient on-site treatment/septic systems, and agricultural activities. While post-construction stormwater runoff from the project would ultimately discharge into the Scantic River, the proposed project would not result in an increase in the identified pollutants. The Council finds that no wetlands or watercourses would be adversely impacted by the installation of the proposed facility.

Vernal Pools

A vernal pool was identified near the center of the site (between the Eastern Array and the Western Array areas). The pool is surrounded by red maple and paper birch in the tree stratum with mountain laurel, red maple and highbush blueberry growing sparsely in the shrub stratum. This pool was inundated in the spring and covers an area of about 1,360 square feet. The water level was shallow at about one to two feet in depth, with the deepest portions occurring in ruts. The pool area was completely dry when observed on August 1, 2017 and again on June 18, 2018. Based on the results of the vernal pool surveys, the pool meets the criteria for consideration as a Tier I vernal pool. However, low egg mass counts, a short hydroperiod, and agricultural activities within the (100-foot to 750-foot) Critical Terrestrial Habitat (CTH) reduce the function of this pool on the landscape. Thus, the pool likely serves as a sink for wood frogs on some years[10] and spotted salamanders in most years.

The vernal pool and its vernal pool envelope (VPE or area within 100 feet of the spring high water mark) would not be impacted or altered by the proposed project.

The pre-construction CTH area (totaling about 40 acres) is approximately 29 percent agricultural field and about 71 percent forested land. Post-construction, the CTH area would consist of approximately 15 percent forested land and approximately 84 percent occupied by the proposed project (or about 4 percent for the access roads and 80 percent as other project footprint with meadow habitat around the solar panels.)

The nearest point of proposed limits of work (i.e. selective trimming) would be no closer than 100 feet from the vernal pool. Under Nutmeg's selective vegetation management plan, tree species outside of the VPE would be selectively removed if they are observed as capable of exceeding a canopy height of 20 to 40 feet

[10] On particularly wet years, the pool may still produce a metamorph of (for example) wood frogs.

within the next five years. Clearing impacts would be minimized through hand cutting for incompatible vegetation. Nutmeg would leave understory vegetation present and allow it to regenerate within the CTH around the vernal pool. The remaining vegetation would, over time, be expected to develop into early successional communities that would naturally inhibit the growth of tree species capable of reaching the canopy height limits. Shrub plantings would be employed along the eastern edge of the proposed access road to the west of the vernal pool after clearing and grading, to provide cover and habitat for amphibian species.

Stormwater

Pursuant to CGS §22a-430b, DEEP retains final jurisdiction over stormwater management. On November 28, 2018, DEEP accepted Nutmeg's application for a DEEP General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities (General Permit) and subsequently approved such application. Accordingly, the Council will require that a copy of the General Permit and a copy of the DEEP-approved Stormwater Management Plan be included in the D&M Plan.

The proposed project would be constructed in phases to minimize disturbance: four major phases with 34 sub-phases. Within each major phase, sub-phases would be designed to be less than 10 acres and each would have a temporary sediment basin or trap as required. The four major phases would include the use of temporary stormwater controls until the site is stabilized.

The project has been designed to comply with the *2004 Connecticut Stormwater Quality Manual* (2004 Stormwater Manual) and the *2002 Connecticut Guidelines for Soil Erosion and Sedimentation Control* (2002 E&S Guidelines). Nutmeg would also comply with the recommendations from DEEP outlined in "Stormwater Management at Solar Farm Construction Projects" dated September 8, 2017. Per the DEEP comments dated November 28, 2018 and in accordance with the 2004 Stormwater Manual, Nutmeg proposes best management practices for stormwater basins and berms. Such best management practices include routine inspections and maintenance.

Stormwater would fall onto solar panels and would flow off the edge onto the vegetated surface and flow along existing flow paths as under existing conditions. The analysis of existing conditions determined that the proposed permanent stormwater management measures would manage stormwater on site such that the rate and volume of stormwater would not increase compared to existing conditions. The Petitioner would maintain the permanent stormwater management measures for the life of the project.

Conclusion

Based on the record in this proceeding, the Council finds that there would not be a substantial adverse environmental effect associated with the construction, maintenance and operation of an approximately 19.6 MW Solar Photovoltaic Project on an approximately 163-acres and associated electrical interconnection to Eversource Energy's Scitico Substation at 20 Bailey Road in Enfield, Connecticut. 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 Small Scale RFP under CGS §16a-3f, it is consistent with the state's energy policy under CGS §16a-35k, and the proposed project would meet all applicable U.S. Environmental Protection Agency and DEEP Air and Water Quality Standards. Therefore, the Council will issue a declaratory ruling for the proposed project.