



STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

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March 29, 2019

TO: Parties and Intervenors

FROM: Melanie Bachman, Executive Director *MB*

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

As stated at the hearing in New Britain on January 24, 2019, after the Connecticut Siting Council (Council) issues its draft findings of fact, parties and intervenors may identify errors or inconsistencies between the Council's draft findings of fact and the record; however, no new information, evidence, argument, or reply briefs will be considered by the Council.

Parties and Intervenors may file written comments with the Council on the Draft Findings of Fact issued on this petition by April 5, 2019.

MB/lm

Enclosure

<p>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.</p>	<p>} Connecticut</p> <p>} Siting</p> <p>} Council</p> <p>March 22, 2019</p>
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DRAFT Findings of Fact

Introduction

1. On October 19, 2018, Nutmeg Solar, LLC (Nutmeg or Petitioner) submitted a petition (Petition) to the Connecticut Siting Council (Council), pursuant to Connecticut General Statutes (CGS) §16-50k and §4-176, for a declaratory ruling for the proposed construction, maintenance, and operation of a 19.6 megawatt (MW) alternating current (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. (Nutmeg 1, pp. 1 and 14)
2. Nutmeg is an indirect, wholly-owned subsidiary of NextEra Energy Resources, LLC (NEER), which is an indirect, wholly-owned subsidiary of NextEra Energy, Inc. (NextEra), headquartered at 700 Universe Boulevard, Juno Beach, Florida. (Nutmeg 1, p. 2)
3. Nutmeg is an independent electrical generation entity that would participate in the ISO-New England, Inc. (ISO-NE) market. (Nutmeg 1, p. 2)
4. The parties in this proceeding are Nutmeg and the Town of Enfield. (Record; Transcript 1, January 10, 2019, 3:00 p.m. [Tr. 1], p. 5)
5. Pursuant to Regulations of Connecticut State Agencies (RCSA) §16-50j-40, notice of the Petition was provided to all abutting property owners by certified mail on or about October 9, 2018. (Nutmeg 1, Tab P)
6. Nutmeg provided notice to all federal, state and local officials and agencies listed in RCSA §16-50j-40 on or about October 9, 2018. (Nutmeg 1, p. 18 and Tab P)
7. The proposed project would generate renewable electrical energy from solar power. Solar power is considered a Class I resource. (Nutmeg 1, p. 16 and 19; C.G.S. § 16-1(a)(20))
8. The proposed project would be a “grid-side distributed resources” facility under C.G.S § 16-1(a)(37). (Nutmeg 1, p. 34; C.G.S. § 16-1(a)(37))
9. Nutmeg would sell power to two Connecticut electric distribution companies – The Connecticut Light and Power Company d/b/a Eversource Energy (Eversource) and The United Illuminating Company (UI) - pursuant to its selection under the Connecticut Department of Energy and Environmental Protection (DEEP) Small-Scale Clean Energy Request for Proposals (Small Scale RFP). (Nutmeg 1, p. 3; Tr. 1, p. 17)

10. The State legislature established a renewable energy policy under C.G.S. §16a-35k that encourages the development of renewable energy facilities to the maximum practicable extent. (C.G.S. § 16a-35k)
11. The Council is required to approve the project by a declaratory ruling as long as the project meets DEEP air and water quality standards. (C.G.S. § 16-50k(a))

Procedural Matters

12. Upon receipt of the Petition, on October 22, 2018, the Council sent a letter to the Town of Enfield as notification that the Petition was received and is being processed in accordance with C.G.S. §16-50k(a). Notice was also provided to the Town of Somers because it is located within 2,500 feet of the proposed site. (Council correspondence dated October 22, 2018)
13. During a regular Council meeting held on December 6, 2018, the Petition was deemed complete pursuant to RCSA §16-50j-39a, and in its discretion under C.G.S. §4-176, the Council voted to hold a public hearing on the Petition. A public hearing schedule was also approved by the Council. (Record)
14. On December 7, 2018, the Council sent a letter to the Towns of Enfield and Somers to provide notification of the scheduled public hearing and invite the municipalities to participate. (Record)
15. Pursuant to C.G.S §16-50m, the Council published legal notice of the date and time of the public hearing in The Journal Inquirer on December 8, 2018. (Record)
16. On December 18, 2018, the Council held a pre-hearing conference on procedural matters at the office of the Council, 10 Franklin Square, New Britain, Connecticut for parties and intervenors to discuss the requirements for pre-filed testimony, exhibit lists, administrative notice lists, expected witness lists, filing of pre-hearing interrogatories and the logistics of the public inspection of the site scheduled for January 10, 2019. The Petitioner and the Town of Enfield participated in the pre-hearing conference. (CSC Pre-Hearing Conference Memoranda, dated December 11, 2018 and December 18, 2018).
17. Pursuant to RCSA § 16-50j-21, on December 21, 2018, Nutmeg erected a sign at the proposed site on the east side of Broad Brook Road, north of Tobacco Barn Nos. 4 and 5. (See Figure 1.) The sign presented information including the project name, type of facility, date of Council's public hearing, and contact information for the Council. (Tr. 1, pp. 12-13; Nutmeg 1, Tab A – Figure 7)
18. The Council and its staff conducted a public inspection of the proposed site on January 10, 2019, beginning at 1:30 p.m. (Council Hearing Notice dated December 7, 2018)
19. Pursuant to C.G.S. § 16-50m, the Council, after giving due notice thereof, held a public hearing on January 10, 2019, beginning with the evidentiary hearing session at 3:00 p.m. and continuing with the public comment session at 6:30 p.m. at the Enfield Town Hall, Council Chambers, 820 Enfield Street, Enfield, Connecticut. (Council's Hearing Notice dated December 7, 2018; Tr. 1, p. 1; Transcript 2 – 6:30 p.m. [Tr. 2], p. 94)
20. On January 15, 2019, pursuant to CGS §1-210(b), Nutmeg filed a Motion for Protective Order (MPO) related to the disclosure of Late Filed Exhibit (a) – the estimated total cost of the project. At a public meeting held in New Britain on January 17, 2019, the Council granted Nutmeg's MPO. (Nutmeg MPO dated January 15, 2019; Council Decision on MPO dated January 18, 2019)

21. The Council held a continued evidentiary hearing session on January 24, 2019 at 1:00 p.m. at the office of the Council, 10 Franklin Square, New Britain, Connecticut. (Tr. 2, p. 118; Council Memorandum on Continuation of Evidentiary Hearing dated January 11, 2019; Transcript 01/24/19, 1:00 p.m., [Tr. 3], p. 120)
22. The Connecticut Supreme Court acknowledges that constitutional principles permit an administrative agency to organize its hearing schedule so as to balance its interest in reasonable, orderly and non-repetitive proceedings against the risk of erroneous deprivation of a private interest. (*Concerned Citizens of Sterling v. Connecticut Siting Council*, 215 Conn. 474 (1990); *Pet v. Department of Public Health*, 228 Conn. 651 (1994); *FairwindCT, Inc. v. Connecticut Siting Council*, 313 Conn. 669 (2014))

Municipal Consultation and Community Outreach

23. Since November 2016, NEER and/or its consultants have met* with the Town of Enfield (Town) with respect to the proposed project. One meeting was held with the Chair of the Enfield Clean Energy Committee; five meetings were attended by the Director of Development Services; four meetings were attended by the Finance Director; three meetings were attended by the Supervisor of Assessment and Revenue Collection; one meeting was attended by the Community Development Director; two meetings were attended by Planning & Zoning; one meeting attended by the Zoning Board; two meetings were attended by Inland Wetlands and Watercourses; two meetings were held with the Town Council; three meetings were attended by the Town Manager and/or Acting Town Manager; NEER discussed the proposed project twice with the Town Engineer via phone and email; two meetings were attended by the Conservation Commission; two meetings were attended by the Agricultural Commission; two meetings were attended by the Economic Development Commission; one meeting was attended by the former Mayor; one meeting was attended by the Director of Planning; and one meeting was attended by the Assistant Town Planner.

*Many of these meetings overlap and contain more than one Town representative or board present simultaneously. (Nutmeg 5)

24. Since January 2017, the Petitioner has held several meetings with project abutters to identify any concerns related to the project. (Nutmeg 1, p. 17)
25. An open house for abutters and other Town residents was held on site at 65 Broad Brook Road on August 1, 2017 to provide information and answer questions or concerns about the proposed project. Letters and invitations were sent to all abutters to notify them about the development of the project and the upcoming open house event. A second open house was held on site on September 26, 2017. (Nutmeg 1, p. 17; Nutmeg 5)
26. From January 2017 through November 2018, NEER held four meetings with State Representative Carol Hall of the 59th District, one meeting with State Representative Greg Stokes of the 58th District, and one meeting with State Senator John Kissel of the 7th District. (Nutmeg 5; Record)
27. By letter dated November 9, 2018, Rep. Hall, Rep. Stokes and Senator Kissel requested that a public hearing be held so that Town residents may have ample opportunity to voice their input. (Record)
28. By letter dated November 14, 2018, the Town requested that a public hearing be held on this matter. (Town 1)
29. By letter received November 20, 2018, Fire Commissioner Richard Tkacz noted that the Hazardville Fire District supports the proposed project. (Record)

30. In its January 16, 2019 pre-filed testimony, the Town notes that while the Town Council supports the proposed project in concept, and appreciates that the Petitioner has agreed to refine the visual mitigation plan, the Town Council requests that the Council further consider factors to mitigate the proposed solar farm’s effects on the residents in the area. (Town 2)
31. By letter dated January 23, 2019, Nutmeg responded to the Town’s comments and requests dated January 16, 2019. The Town’s requests and Nutmeg’s responses are noted below as follows:

Town Requests	Nutmeg’s Responses
A significant percentage of model pollinators be among the Petitioner’s plantings.	Petitioner proposes to install tiered landscaping and plantings in certain areas where grading would occur within the Critical Terrestrial Habitat of the vernal pool. Approximately 54 percent of the proposed plantings would be pollinator-friendly.
Plantings (in addition to the proposed fence) be included along Broad Brook Road where it is devoid of buffers and open to the road.	Petitioner proposes to install approximately 1,570 feet of vegetative screening where the proposed project would be visible from abutting residences. The screening plan was modified in response to feedback from the Town received in December 2018. In addition, approximately 3,798 feet of wide-mesh agricultural fencing would be installed along the proposed project’s western boundary.
A plan to manage invasive species that may flourish in any disturbed area.	Petitioner would monitor and manage invasive plants at the site. Herbicides would be used to manage new vegetation and existing invasive plants* by utilizing a spot treatment application, as necessary.
A plan to maintain, in conformance with the Town’s Property Maintenance Ordinance, that area between the proposed fence along Broad Brook Road and its street line.	Petitioner (either directly or in coordination with the landowner) would ensure proper maintenance of vegetation in the area between the proposed Project fence and Broad Brook Road.
To the extent that any pesticides or herbicides could be used in the management of grass, vegetation, or any other planting or eradication of grass, vegetation or any other growth, a provision that the Petitioner safeguard well water.	The primary means of vegetation management would be mowing. Petitioner may use herbicides for limited spot treatments as a secondary means of vegetation control where necessary. The current property owners routinely broadcast pesticides and herbicides as part of their tobacco cultivation practices. As such, if approved, the proposed Project would likely decrease the use of pesticides and herbicides on the Project site.
Given the topography of the site and its proximity to residents, Town roads, and State roads, proper drainage is essential, and safeguards for proper drainage shall be included.	Petitioner prepared a comprehensive stormwater analysis and developed plans for the management of stormwater during the construction period and post-construction for the life of the project. Petitioner received approval from DEEP in accordance with the General Permit for Discharge of Stormwater Associated with Construction Activities. Petitioner would maintain the permanent stormwater

	management measures for the life of the proposed project.
Construction hours shall be limited to work days and normal business hours (i.e. Monday through Friday, 9am to 5pm), and weekends shall be avoided; and	The Town’s proposed construction hour limitations could potentially increase the proposed project’s construction timeline by months and significantly increase construction costs. Petitioner proposes to limit pile driving construction activities to the hours of 9 a.m. and 5 p.m.
Rather than using driven piles to create the foundation for the installation of the solar panels, auger piles shall be used to result in a lower decibel level.	Pile driving is industry standard practice for the installation of racking posts. Auger piles are most useful on sites with challenging subsurface conditions (which have not been identified at this site). The installation of auger piles and the associated racking solution requires significantly more time, which would result in a prolonged construction schedule.

*Poison Ivy, though not a state-listed invasive species, exists at the site. While undesirable for humans, poison ivy has benefits for wildlife because the fruits of the plant could be a resource for birds and other wildlife. However, Council records (Council Petition No. 1042) indicate that poison ivy thrives in areas beneath solar arrays and may require use of herbicide for control. (Town 2; Nutmeg 12; Tr. 3, pp. 132, 138)

32. The Town of Somers did not comment. (Tr. 1, p. 15; Record)
33. At the public comment session, Rep. Hall made a limited appearance statement. Rep. Hall shares the concerns of the Town in its pre-filed testimony and notes that the Town’s Plan of Conservation and Development, while supportive of renewables, proposes to have renewable energy projects located in industrial-zoned areas rather than residential neighborhoods as proposed. There was neighborhood opposition early in the project planning; however, Rep. Hall notes that NextEra incorporated some major modifications to the project such as eliminating a solar array/area to the west of Broad Brook Road. (Tr. 2, pp. 108-110)
34. From April 2017 through November 2018, NEER met with the North Central Chamber of Commerce (NCCC) four times. Nutmeg joined the organization in October 2017. Nutmeg would continue to work closely with the community and the NCCC to utilize local resources as the project is developed. (Nutmeg 1, p. 17; Nutmeg 5)
35. C.G.S. § 22a-20a requires applicants seeking a permit from DEEP or the Council for a new or expanded facility defined as an “affecting facility” that is proposed to be located in an environmental justice community to file an Environmental Justice Public Participation Plan (EJPPP). However, the proposed solar facility is not an “affecting facility” under C.G.S. §22a-20a because it uses non-emitting and non-polluting renewable resources. Thus, Environmental Justice does not apply to the facility, and an EJPPP is not required. (C.G.S. § 22a-20a; Nutmeg 1, p. 15)

State Agency Comments

36. Pursuant to R.C.S.A. §16-50j-40, on October 22, 2018 and December 7, 2018, the following state agencies were requested to submit written comments regarding the proposed facility: DEEP; Department of Agriculture (DOAg); Department of Public Health (DPH); Council on Environmental Quality (CEQ); Public Utilities Regulatory Authority (PURA); Office of Policy and Management (OPM); Department of Economic and Community Development (DECD); Department of Emergency Services and Public Protection (DESPP); Department of Consumer Protection (DCP); Department of Labor (DOL); Department of Construction Services (DCS); Department of Transportation (DOT); the Connecticut Airport Authority (CAA); and the State Historic Preservation Office (SHPO). (Record; Council Hearing Package, dated December 7, 2018)
37. On November 29, 2018, the Council received comments from DEEP, which are attached hereto. (DEEP Letter received November 29, 2018)
38. On December 14, 2018, the Council received a response from CAA indicating that while CAA recognizes that the Petitioner consulted with the Federal Aviation Administration (FAA), the CAA respectfully requests a copy of any glare studies that have been developed to understand the impacts that the proposed project could have on air traffic in the area. (CAA Comments received December 14, 2018)
39. While the Council is obligated to consult with and solicit comments from state agencies by statute, the Council is not required to abide by the comments from state agencies. (Council Administrative Notice Item No. 100 – *Corcoran v. Connecticut Siting Council*, 284 Conn. 455 (2007))
40. The following agencies did not respond to the Council's request for comment on the proposed facility: DOAg, DPH, CEQ, PURA, OPM, DECD, DESPP, DCP, DOL, DCS, DOT and SHPO. (Record)

New England Regional System Planning

41. New England's electric power grid has been planned and operated as a unified system of transmission owners and market participants. The New England system integrates resources with the transmission system to serve all regional load regardless of state boundaries. Therefore, electrical performance in one part of the system affects all areas of the system. (Council Administrative Notice Item No. 26 – 2015 ISO-NE Regional System Plan, pp. 25-26)
42. Created in 1997, ISO-NE is the independent, not-for-profit corporation responsible for the reliable operation of New England's electric power generation and transmission system, overseeing and ensuring the fair administration of the region's wholesale electricity markets, and managing comprehensive regional electric power planning. (Council Administrative Notice Item No. 44 – ISO FCA #12 Press Release dated February 28, 2018, p. 2)
43. ISO-NE's primary responsibility is electric reliability. ISO-NE is fuel and technology neutral and takes no position on any proposed energy projects. ISO-NE does not own any transmission or distribution lines or power plants. (Council Administrative Notice Item No. 37 – ISO-NE State of the Grid Presentation dated January 30, 2017, pp. 5-6; Council Administrative Notice Item No. 54 – Council Petition No. 1312, FOF #48)
44. On November 2, 2017, ISO-NE issued the 2017 Regional System Plan (2017 RSP) to identify the New England region's electricity needs and plans for meeting these needs for 2017 through 2026. (Council Administrative Notice Item No. 26 – 2017 RSP, p. iii)

45. ISO-NE holds an annual auction to acquire the power system resources needed to meet future demand for the New England region. The annual Forward Capacity Market Auction (FCA) is held approximately three years before each capacity commitment period to provide time for new resources to be developed. Capacity resources can include traditional power generation, renewable generation, imports, or demand-side resources, such as load management and energy efficiency measures. Resources clearing in the auction will receive a monthly payment during the delivery year in exchange for their commitment to provide power or curtail demand when called on by ISO-NE. (Council Administrative Notice Item No. 42 – ISO FCA #11 Press Release dated February 9, 2017, pp. 1-2)
46. ISO-NE computes and annually updates an installed capacity requirement (ICR) for the New England Region. ICR is a measure of the installed resources that are projected to be necessary to meet both ISO-NE's and the Northeast Power Coordinating Council's (NPCC) reliability standards, with respect to satisfying the peak load forecast for the New England Balancing Authority while maintaining required reserve capacity. (Council Administrative Notice Item No. 33 - ISO-NE ICR Report dated January 2016, p. 9; Council Administrative Notice Item No. 54 – Petition No. 1312 Finding of Fact #52)

Generating Capacity Retirements in New England

47. The 2017 ISO-NE Regional System Plan identifies the following power plants as retired or slated to retire in the near future.

Power Plant	Fuel	Summer Capacity	Status
Vermont Yankee	Nuclear	604 MW	Retired
Mount Tom	Coal	143 MW	Retired
Salem Harbor	Coal and Oil	749 MW	Retired
Pilgrim	Nuclear	677 MW	To be retired in 2019
Brayton Point	Coal and Oil	1,535 MW	Retired
Norwalk Harbor	Oil	342 MW	Retired
Bridgeport Harbor No. 3	Coal	383 MW	To be retired in 2021
Total		4,433 MW	

(Council Administrative Notice Item No. 54 – Petition No. 1312 Finding of Fact #53; Council Administrative Notice Item No. 27 – 2017 RSP, p. 49; Council Administrative Notice Item No. 32 – ISO-NE 2018 Regional Electricity Outlook, p. 20; Council Administrative Notice Item No. 30 – 2018 CELT Report, Section 2.1)

48. The 2017 Regional Electricity Outlook (2017 REO) identifies generating resources “at risk for retirement in coming years” and referred to these resources in a table as “hypothetical” retirements in the 2025 through 2030 timeframe. These “at risk” power plants are listed below.

Power Plant	Fuel	Summer Capacity
Yarmouth Nos. 1-4	Oil	808 MW
Merrimack No. 1-2	Coal	438 MW
Newington No. 1	Oil/Natural Gas	400 MW
Schiller Nos. 4&6	Coal	95 MW
Mystic No. 7	Oil/Natural Gas	573 MW
Canal Nos. 1&2*	Oil	1,125 MW
West Springfield No. 3**	Natural Gas/Oil	94 MW
Middletown Nos. 2-4***	Oil/Natural Gas	744 MW
Montville Nos. 5-6****	Oil/Natural Gas	480 MW
New Haven Harbor	Oil/Natural Gas	347 MW
Total		5,104 MW

*Canal No. 1 is oil-fired only. Canal No. 2 is oil/natural gas.

**While primarily fueled by natural gas, this is a steam turbine unit.

***Middletown No. 4 is oil-fired only. Middletown Nos. 2 and 3 are oil/natural gas.

****Montville No. 5 is oil/natural gas. Montville No. 6 is oil-fired only.

(Council Administrative Notice Item No. 31 – ISO-NE 2017 REO, pp. 27-28; Council Administrative Notice Item No. 32 – ISO-NE 2018 Regional Electricity Outlook, pp. 8 and 20; Council Administrative Notice Item No. 30 – 2018 CELT Report, Section 2.1; Council Administrative Notice Item No. 48 – Council 2017/2018 Forecast Report, Appendix A)

49. The 2018 ISO-NE Regional Electricity Outlook identifies several new large recent electric generation projects that cleared the FCA. Such plants with their projected operational target dates are listed below.

Power Plant	Fuel	FCA-cleared Capacity	Operational Target Date*
Towantic	Natural Gas/Oil	750 MW	2018
Footprint	Natural Gas	674 MW	2018
Clean River Energy Center No. 1	Natural Gas/Oil	485 MW	2020
Bridgeport Harbor No. 5	Natural Gas/Oil	484 MW	2019
Canal No. 3	Natural Gas/Oil	333 MW	2019
Medway	Natural Gas/Oil	195 MW	2018
Wallingford No. 6 and 7	Natural Gas	90 MW	2018
Total		3,011 MW	

*Projected dates, subject to delays

(Council Administrative Notice Item No. 32 – ISO-NE 2018 Regional Electricity Outlook, p. 21; Council Administrative Notice Item No. 45 – ISO-NE FCA Results Filing in FERC Docket No. ER18-940-000, dated February 28, 2018, Appendix A; Council Administrative Notice Item No. 27 – 2017 RSP, pp. 48 and 72; Council Administrative Notice Item No. 30 – 2018 CELT Report, Section 2.1)

Nutmeg's Participation in ISO-NE's Forward Capacity Market Auction

50. Nutmeg has completed the show of interest and qualification determination processes as part of its participation in the ISO-NE FCA. Specifically, Nutmeg plans to participate in the ISO-NE FCA #13, scheduled for February 2019, for the 2022-2023 Capacity Commitment Period. (Nutmeg 2, response 8)
51. For solar resource capacity, ISO-NE counts a percentage of a project's nameplate capacity - the megawatts it should produce under optimal conditions - and its measurable day-to-day performance, which can differ significantly due to the weather-dependent nature of solar resources. (Council Administrative Notice Item No. 54 – Council Petition No. 1312, FOF #56)

Regional Collaboration Among the New England States

52. In September 2013, the Governors of the six New England states in the ISO-NE region entered into a commitment to advance a regional energy infrastructure initiative that diversifies the region's energy supply portfolio while ensuring that the benefits and costs of investments are shared appropriately among the New England states. (Council Administrative Notice Item No. 54 – Council Petition No. 1312, FOF #59)
53. In April 2015, the Governors of the six New England states in the ISO-NE region convened a Northeast Forum on Regional Energy Solutions focused on energy infrastructure challenges and regional collaboration to support energy infrastructure solutions, and reaffirmed their commitment to work together toward a cleaner, more reliable and more affordable energy future. The Governors released a six-state action plan that includes, but is not limited to, continuing to invest in energy efficiency and distributed generation, utilizing existing authority to procure clean energy generation and transmission, and securing and utilizing state authority to find solutions to infrastructure challenges. (Council Administrative Notice Item No. 54 – Council Petition No. 1312, FOF #60)
54. Two types of standards are generally used to implement policy objectives in the electric power sector: Renewable Portfolio Standards (RPS) and Clean Energy Standards. Both standards have a requirement that regulated utilities or others providing certain services to consumers must either buy the desirable environmental attributes of certain power generation sources or pay a fee. (Council Administrative Notice Item No. 54 – Council Petition No. 1312, FOF #61)
55. A renewable energy certificate (REC) certifies that one megawatt-hour (MWh) of renewable electrical energy has been generated. RECs create a market to separate renewable energy attributes and resource output. Environmental attributes are sold into the REC markets. (Council Administrative Notice Item No. 54 – Council Petition No. 1312, FOF #62)

State of Connecticut Planning and Energy Policy

56. Public Act (PA) 11-80 was the legislation that restructured the Department of Environmental Protection as the Department of Energy and Environmental Protection. Section 51 of PA 11-80 requires that DEEP prepare a Comprehensive Energy Strategy (CES) every three years that reflects the legislative findings and policy stated in C.G.S. §16a-35k. As such, this statute consolidated Connecticut's energy planning for the first time. The final version of the state's inaugural CES was published on February 19, 2013 (2013 CES). It advocated smaller, more diversified generation projects using renewable fuels, as well as smaller, more innovative transmission projects emphasizing reliability. (Council Administrative Notice Item No. 47 – Council 2014/2015 Forecast Report, pp. 48-49; Council Administrative Notice Item No. 61 – 2013 CES; CGS §16a-3d)

57. On February 8, 2018, DEEP issued the 2018 Comprehensive Energy Strategy (2018 CES). Guided by the long-term vision of transitioning to zero-carbon economy, the 2018 CES highlights eight key strategies to guide administrative and legislative action over the next several years. Specifically, strategy No. 3 is “Grow and sustain renewable and zero-carbon generation in the state and region.” (Council Administrative Notice Item No. 62 – 2018 CES, p. 14)
58. Biennially, DEEP, in consultation with the electric distribution companies, is required to prepare an energy and capacity resource assessment. Resource needs are required to first be met through all available energy efficiency and demand reduction resources that are cost-effective, reliable and feasible. Thereafter, needs for generation capacity and transmission and distribution improvements are considered. (CGS §16a-3a)
59. Pursuant to CGS §16a-3a, DEEP, in consultation with the electric distribution companies, is required to review the state’s energy and capacity resource assessment and approve the Integrated Resource Plan (IRP) for the procurement of energy resources, including, but not limited to, conventional and renewable generating facilities, energy efficiency, load management, demand response, combined heat and power facilities, distributed generation and other emerging energy technologies to meet the projected requirements of customers in a manner that minimizes the cost of all energy resources to customers over time and maximizes customer benefits consistent with the state’s environmental goals and standards. The goal of the IRP is to lower the rates and cost of electricity. (CGS §16a-3a)
60. Annually, the procurement manager of the PURA, in consultation with each electric distribution company, shall develop a plan for the procurement of electric generation services and related wholesale electricity market products to enable the electric distribution companies to manage a portfolio of contracts to reduce the average cost of standard service while maintaining cost volatility within reasonable levels. The Procurement Plan shall provide for the competitive solicitation, including contracts for generation or other electricity market products and financial contracts and an explanation of why such purchases are in the best interest of ratepayers. (CGS §16-244m)
61. From time to time, in accordance with the IRP and the Procurement Plan, DEEP shall initiate a generation evaluation and procurement process if it is determined to be in the best interests of Connecticut customers. The evaluation process entails a nonbinding prequalification process to identify potentially eligible new generators. Generators shall demonstrate how they will reduce electrical rates for Connecticut ratepayers while maintaining or improving reliability, improving environmental characteristics of the Connecticut generation fleet and providing economic benefit to Connecticut. (CGS §16-244m)
62. Determination of generator eligibility is based on a showing of project attributes, including, but not limited to, ratepayer, environmental and economic benefits, as well as a demonstration of reasonable certainty of completion of development. If a determination of eligibility is made by DEEP, it shall issue a request for proposals. (CGS §16-244m)

Connecticut’s Renewable Portfolio Standards

63. RPS requirements are stimulating the need for and the development of renewable energy resources and energy efficiency in the region, which reduce emissions. States typically develop RPS to facilitate the development of new renewable energy sources with the goals of stabilizing long-term energy prices, enhancing environmental quality and creating jobs. RPS targets are designed to achieve a certain level of renewable energy penetration, typically in proportion to total electricity sales. (Council Administrative Notice Item No. 26 - 2015 RSP, p. 12; Council Administrative Notice Item No. 54 – Council Petition No. 1312, FOF #71)

64. C.G.S. §16-245a, establishes Connecticut's RPS. Up until recently, RPS required that 20 percent of Connecticut's electricity usage had to be obtained from Class I renewable resources by 2020. Under Public Act 18-50, RPS was updated to require 21 percent of Connecticut's electricity usage to come from Class I renewable resources by 2020. (CGS §16-245a; Council Administrative Notice Item No. 62 – 2018 CES, p. 110-112; Public Act 18-50)
65. RECs provide additional revenue to qualifying renewable resources in proportion to the energy each resource generates. RECs create a market that reveals the additional price required, beyond energy and capacity payments, to make projects economically viable and also identifies when there is a need for additional resources. The REC-based compliance feature is designed to use competitive market forces to identify the appropriate level of economic support to achieve the policy goals. (Council Administrative Notice Item No. 54 – Council Petition No. 1312, FOF #73)
66. Connecticut electric utilities that do not obtain the required number of RECs are required to pay an Alternative Compliance Payment (ACP). According to DEEP's 2018 Comprehensive Energy Strategy (2018 CES), for Class I renewable energy in Connecticut, the ACP is \$55 per MWh. (Council Administrative Notice Item No. 64 - 2014 IRP, Appendix D, pp. D-3 and D-4; Council Administrative Notice Item No. 62 - 2018 CES, p.112)
67. The 2018 CES notes that, "Most recent analyses indicate that there should be adequate Class I resources to meet Connecticut's Class I Renewable Portfolio Standards (RPS) goals in 2020*."

*This was based on the "20 percent Class I by 2020" requirement that was in place at the time the 2018 CES was prepared.

(Council Administrative Notice Item No. 62 – 2018 CES, p. 112)

Connecticut's Global Warming Solutions Act and Climate Change Preparedness Plan

68. The Global Warming Solutions Act (PA 08-98) sets a goal of reducing greenhouse gas (GHG) emissions by 80 percent below the level emitted in 2001 by 2050. (CGS §22a-200)
69. Section 7 of PA 08-98 required the Governor's Steering Committee on Climate Change to establish an Adaptation Subcommittee to evaluate the projected impacts of climate change on Connecticut agriculture, infrastructure, natural resources and public health and develop strategies to mitigate these impacts. (Council Administrative Notice Item No. 76 – Climate Change Preparedness Plan)
70. Adaptation strategies for agriculture, infrastructure and natural resources include, but are not limited to, best management practices to ensure water recharge, sustainable water capture and storage and water reuse guidelines for industry; research, monitoring and education to analyze competing demands on Connecticut water quantity and quality to develop new approaches while supporting multiple and conflicting needs; and policy, legislation, regulation and funding to protect critical soil landscapes, adopt a water hierarchy and encourage collaboration with other states and federal agencies. (Council Administrative Notice Item No. 76 – Climate Change Preparedness Plan)

DEEP Competitive Energy Procurements

71. On November 12, 2015, pursuant to Section 1(c) of PA 15-107 and Sections 6 and 7 of PA 13-303, DEEP issued notice for a RFP, in coordination with Rhode Island and Massachusetts, for Class I renewable energy sources (Tri-State RFP). Project selection occurred on October 25, 2016. 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 with the EDCs for a combination of energy and environmental attributes. The 9 projects selected were as follows:
- a) 21 MW Antrim Wind Project in New Hampshire;
 - b) 49 MW Sanford Solar Project in Maine;
 - c) 49 MW Chinook Solar Project in New Hampshire;
 - d) 49 MW Quinebaug Solar Project in Connecticut (Council Petition No. 1310);
 - e) 49 MW Farmington Solar Project in Maine;
 - f) 20 MW Enfield Solar Project in Connecticut (Council Petition No. 1352);
 - g) 126 MW Cassadaga Wind Project in New York;
 - h) 20 MW Woods Hill Solar Project in Connecticut (Council Petition No. 1224); and
 - i) 20 MW Hope-Scituate Solar Project in Rhode Island.
- (Council Administrative Notice Item No. 54 – Petition No. 1312 Finding of Fact #84)
72. In the Tri-State RFP, Massachusetts and Rhode Island selected 11 out of 31 proposed projects to enter into long-term power purchase agreements with the EDCs for a combination of energy and environmental attributes. The 11 projects selected were as follows:
- a) 21 MW Antrim Wind Project in New Hampshire;
 - b) 49 MW Sanford Solar Project in Maine;
 - c) 49 MW Chinook Solar Project in New Hampshire;
 - d) 49 MW Quinebaug Solar Project in Connecticut (Council Petition No. 1310);
 - e) 49 MW Farmington Solar Project in Maine;
 - f) 20 MW Enfield Solar Project in Connecticut (Council Petition No. 1352);
 - g) 126 MW Cassadaga Wind Project in New York;
 - h) 20 MW Woods Hill Solar Project in Connecticut (Council Petition No. 1224);
 - i) 20 MW Hope-Scituate Solar Project in Rhode Island;
 - j) 26.4 MW Simsbury Solar Farm in Connecticut (Council Petition No. 1313); and
 - k) 20 MW Candlewood Solar Project in Connecticut (Council Petition No. 1312).
- (Council Administrative Notice Item No. 54 – Petition No. 1312 Finding of Fact #85)
73. On March 9, 2016, pursuant to Section 1(b) and 1(c) of PA 15-107, DEEP issued notice for a 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 EDCs for a combination of energy and environmental attributes. The 25 projects selected were as follows:
- a) 15 MW Pawcatuck Solar Center in Connecticut (Council Petition No. 1345);
 - b) 19.99 MW Hecate Energy Solar Greene County Project in New York;
 - c) 6 MW Swantown Road Solar Project in Connecticut;
 - d) 5 MW Holiday Hill Community Wind Project in Massachusetts;
 - e) 19.99 MW Hecate Energy Solar Albany County Project in New York;
 - f) 19.80 MW Litchfield Solar Plant and Park in Connecticut;
 - g) 5 MW Kidder Hill Community Wind Project in Vermont;
 - h) 17.50 MW Swanton Wind Project in Vermont;
 - i) Incremental Energy Efficiency in Connecticut;
 - j) 10 MW North Stonington Solar Plant in Connecticut;
 - k) 14.69 MW W. Portsmouth St. Solar Project in New Hampshire;

- l) 19.59 MW Constitution Solar Project in Connecticut;
- m) 19.60 MW Highgate Solar Project in Vermont;
- n) 19.58 MW Hinckley Solar Project in Maine;
- o) 19.58 MW Randolph Center Solar Project in Vermont;
- p) 19.63 MW Sheldon Solar Project in Vermont;
- q) 19.58 MW Winslow Solar Project in Maine;
- r) 19.58 MW Davenport Solar Project in Vermont;
- s) 19.60 MW Nutmeg Solar Project in Connecticut (Council Petition No. 1352);
- t) 4.98 MW GRE-15-North Haven-CT Solar Project in Connecticut (Council Petition No. 1342);
- u) 19.99 MW Wallingford Renewable Energy Solar Project in Connecticut (Council Petition No. 1339);
- v) 3.50 MW Wind Colebrook South Project in Connecticut (Council Petition No. 983);
- w) 12.50 MW Minuteman Wind Project in Massachusetts;
- x) 17.73 MW GRE-29-Waterford-CT Solar Project in Connecticut (Council Petition No. 1347);
- y) 19.59 MW Coolidge Solar I Project in Vermont.
(Council Administrative Notice Item No. 54 – Petition No. 1312 Finding of Fact #86)

74. Section 6 of Public Act 13-303 (codified at CGS §16a-3g), which allows the Commissioner of DEEP to solicit proposals from providers of Class I renewable energy sources in coordination with other states in the ISO-NE region, was upheld as constitutional by the federal courts. (Council Administrative Notice Item No. 22 – *Allco Fin. Ltd. v. Klee*)

Power Purchase Agreements

75. While the project site was selected in both the Small Scale RFP and the Tri-State RFP, it involved separate bids. Upon selection, a determination was made to go forward with the Small-Scale RFP and not the Tri-State RFP. Thus, Nutmeg has only one set of power purchase agreements (PPAs). (Tr. 1, p. 17)
76. Pursuant to such PPAs, Nutmeg would sell the electricity that would be generated by the proposed project to the following Connecticut utilities: Eversource and UI. (Nutmeg 1, p. 3; Tr. 1, p. 17)
77. Under such PPAs, both the RECs and electricity/energy (collectively, the “Products”) would be sold to the utilities. Approximately 80.4 percent of the Products would be sold to Eversource, and 19.6 percent of the Products would be sold to UI. (Nutmeg 1, p. 3; Nutmeg 2, response 4)
78. The PPAs are based on the proposed facility size of 19.6 MW AC. The facility’s capacity in MW AC would be permitted to change under the PPAs, and such changes are not tied explicitly to unforeseen circumstances. Reductions in capacity could be no more than 2 MW AC per the PPAs. The PPAs permit increases in MW AC, but prevent Eversource’s and UI’s energy and REC purchasing obligations from increasing by recalculating based on the actual facility size. (Nutmeg 2, responses 4 and 6)
79. On September 7, 2017, PURA issued regulatory approval of the proposed project’s PPAs in Docket No. 17-01-11, *PURA Review of Public Act 15-107(b) Small-Scale Energy Resource Agreements*. There are no provisions for extending the PPAs after the 20-year term, and there is no option to renew. (Nutmeg 1, p. 3; Nutmeg 2, response 5)

Public Benefit

80. 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. (CGS §16-50p(c))
81. Public Act 05-1, An Act Concerning Energy Independence, established a rebuttable presumption that there is a public benefit for electric generating facilities selected by the Department of Public Utility Control (DPUC, now known as PURA) in a Request for Proposals. (Public Act 05-1; CGS §16-50k)

Public Act 17-218

82. Effective July 1, 2017, Public Act 17-218 requires, “for a solar photovoltaic facility with a capacity of two or more megawatts, to be located on prime farmland or forestland, excluding any such facility that was selected by DEEP in any solicitation issued prior to July 1, 2017, pursuant to section 16a-3f, 16a-3g or 16a-3j, the DOAg represents, in writing, to the Council that such project will not materially affect the status of such land as prime farmland or DEEP represents, in writing, to the Council that such project will not materially affect the status of land as core forest.” Because the proposed project was selected by DEEP in a solicitation prior to July 1, 2017, the proposed project is exempt from this provision of Public Act 17-218. (Small Scale RFP; CGS §16-50k)
83. Public Act 17-218 also requires that the Council not find a substantial adverse environmental effect in its exercise of jurisdiction over facilities eligible to be approved by declaratory ruling under CGS §16-50k. There are no exemptions from this provision of Public Act 17-218. (CGS §16-50k)

Site Selection

84. To the Petitioner’s knowledge, the initial site selection performed by Ranger Solar used criteria consistent with NEER’s typical approach to evaluating new solar sites. Such criteria include, but are not limited to the following:
- a) Sufficient solar energy resource;
 - b) Minimal or avoidable environmental constraints;
 - c) Flat topography;
 - d) Land availability (i.e. the ability to lease or purchase land); and
 - e) Interconnection feasibility.
- (Nutmeg 8, response 73)
85. Ranger Solar (predecessor in interest to NEER) 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. (Nutmeg 8, responses 73 and 74; Nutmeg 1, p. 3)
86. The Petitioner contends that the proposed site best conforms to Ranger Solar’s (and NEER’s) evaluation criteria. (Nutmeg 8, response 73; Nutmeg 1, p. 3)

Site

87. The proposed site consists of nine parcels located in the southeast portion of the Town. The proposed site is generally bounded by Bailey Road to the north, Broad Brook Road to the west, forested areas to the south, and an existing Eversource transmission line to the east. (Nutmeg 1, p. 5)

88. The proposed site is located in a mixed rural and agricultural areas, with residential homes generally located to the north and west of the site. Also located to the north of the proposed site is Eversource’s Scitico Substation. A locally-owned orchard is located to the northeast, and an active concrete batch plant is located immediately southeast of the proposed site (and west of Broad Brook Road). An inactive railroad line is located west side of Broad Brook Road. The Scantic River is located north of the proposed site across Bailey Road. (Nutmeg 1, pp. 5, 6 and 9; Nutmeg 1, Tab A, Figure 7 – Proposed Conditions)
89. The Petitioner has worked with landowners on the project since 2015 and secured the nine parcels of land (totaling about 162 acres) through a combination of lease and option to purchase agreements. The nine parcels (collectively, the “subject property”) are listed below.

Parcel ID	Current Owner	Project Lease or Purchase
108-6	Jarmoc Farms, LLC and Jarmoc Real Estate, LLC	Lease
102-48	Jarmoc Farms, LLC and Jarmoc Real Estate, LLC	Lease
102-50	Jarmoc Farms, LLC and Jarmoc Real Estate, LLC	Lease
109-3	David and Donna Waleryszak	Lease
109-4	Laura Jarmoc	Purchase
109-18	Laura Jarmoc	Purchase
109-40	Laura Jarmoc	Purchase
109-12	James Lefebvre	Purchase
109-13	James Lefebvre	Purchase

(Nutmeg 1, pp. V and 6)

90. The proposed site is zoned One-Family Residential (R-88). (Nutmeg 1, p. 7)
91. The western portion of the proposed Project site consists of predominately flat areas currently used as agricultural fields with accompanying outbuildings, most recently for the cultivation of tobacco and gourd (i.e. pumpkin and squash) crops. Approximately 70 acres is currently farmed by the property owner. The eastern portion of the proposed Project site consists of mixed second-growth forest. There is an existing network of recreational vehicle trails and tree stands indicating that the current use of the land is primarily for hunting and recreational activities. There is also evidence of past timber harvesting and gravel extraction activities on the subject property. (Nutmeg 1, p. 6; Nutmeg 2, response 11)
92. Three existing tobacco barns, known as Tobacco Barn Nos. 1, 2 and 3 are located in the northwestern portion of the proposed site, just east of Broad Brook Road. Two additional tobacco barns, known as Tobacco Barn Nos. 4 and 5, are located in the western-central portion of the proposed site, just east of Broad Brook Road. (Nutmeg 1, Tab A – Figure 7)

93. The nearest off-site residence (at its closest corner) is located approximately 124 feet from the proposed solar facility perimeter fence. The residence is located at 59 Broad Brook Road and is owned by Hazardville Property Management Co LLC. (Nutmeg 2, response 13; Nutmeg 8, response 78)

Project Description

94. The proposed project consists of a solar photovoltaic electric generating facility consisting of approximately 72,520 fixed solar panels at approximately 400 Watts direct current (DC) each, for a total of about 29.0 MW DC. The proposed solar panels would be oriented an angle of 25 degrees above the horizontal. See Figure 2. (Nutmeg 1, pp. 1 and 7; Nutmeg 1, Tab G – Drawing No. C-042; Nutmeg 6)
95. The solar panels would be installed in a portrait fashion on linear arrays on racking systems generally in an east-west orientation with the panels facing the south. (Nutmeg 2, responses 16 and 25; Nutmeg 1, Tab G – Drawing No. C-021)
96. The proposed project would include an approximately 15-foot wide aisle between solar racking systems (measured from panel edge to panel edge). This proposed inter-row spacing would minimize row to row shading and allow for necessary maintenance access. (Nutmeg 1, p. 8; Nutmeg 2, response 31)
97. There would be up to 14 inverters to convert the DC power produced by the solar panels to AC power. The AC voltage output from each inverter would be boosted to 34.5 kilovolts (kV) by a transformer located next to each inverter. 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 with dimension of approximately 12 feet by 20 feet. (Nutmeg 2, responses 27 and 40; Nutmeg 1, p. 8)
98. The Western Array would be approximately 6.2 MW AC, and the Eastern Array would be approximately 13.4 MW AC. The total would be approximately 19.6 MW AC at the point of interconnection, taking into account losses. See Figure 1. (Nutmeg 2, responses 15 and 26)
99. Having higher MW on the DC side than the AC side ensures sufficient power to operate the inverters during lower light conditions. (Tr. 3, p. 137)
100. The growth of native meadow vegetation following construction would be promoted and maintained by mowing twice per year to allow for healthy ground cover and to prevent woody vegetation growth. In addition, semi-annual inspections of site vegetation would occur throughout the life of the proposed project to ensure that patchy or bare ground is remediated and reseeded as necessary to promote healthy ground cover throughout the site. (Nutmeg 2, response 70)
101. The top of the solar arrays would reach a height of approximately seven feet. The bottom of the solar arrays would be located approximately two feet above grade. (Nutmeg 1, Tab G – Drawing No. C-042)

102. Three types of fencing are proposed: perimeter fence, Collector Substation fence and agricultural fence. The total length of the fencing is approximately 17,056 linear feet. 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. The Collector Substation would be enclosed by an 8-foot chain link fence* with barbed wire along the top (as an anti-climb measure) and with a mesh size of no greater than approximately two inches. Approximately 3,798 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 six-inch wildlife gap is not proposed for the Collector Substation fence.
(Nutmeg 1, p. 10; Nutmeg 2, response 39)

103. The primary access to proposed facility site during construction and operations would be from Broad Brook Road. This location was selected based on impact avoidance through the use of existing roads and infrastructure, site topography, and to minimize impacts to residents along Bailey Road. (Nutmeg 1, p. 9)

104. The Petitioner would seek an Encroachment Permit from DOT for construction access from Broad Brook Road, a state road. No improvements to Broad Brook Road or new curb cuts are proposed. (Nutmeg 2, response 57)

105. For emergency purposes only, a secondary access point would be located along an existing driveway from Bailey Road, north of the proposed site. (Nutmeg 1, p. 9)

106. A series of gravel access roads (totaling approximately 1.4 miles) would be constructed within the 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. 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. Access roads would be comprised of a 12-inch thick crushed stone base and a 4-inch thick traffic bound gravel surface. Minor grading would be required along the proposed access roads in select locations to address minor variations in site topography. (Nutmeg 1, p. 9)

107. Tobacco Barn Nos. 1 and 2 would be relocated to approximately the northwestern limits of the project footprint for visual screening purposes. Tobacco Barn Nos. 3 through 5 would removed to construct the proposed facility. See Figure 1. (Nutmeg 1, Tab A – Figure 7; Nutmeg 1, p. 10)

108. The approximate dimensions of the tobacco barns to be relocated are listed below.

Tobacco Barn	Length	Width	Height
Tobacco Barn No. 1	~248 feet	~42 feet	Peak height <20 feet
Tobacco Barn No. 2	~139 feet	~43 feet	Peak height <20 feet

(Tr. 1, pp. 14-15; Nutmeg 1, Tab A – Figure 7; Nutmeg 1, Tab G Tab G – Drawing Nos. C-003 and C-006)

109. The total estimated cost of the proposed project was filed under seal subject to a MPO that was granted by the Council. (Late Filed Exhibit a; Nutmeg MPO dated January 15, 2019; Council Decision on MPO dated January 18, 2019)

Electrical Interconnection

110. 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 the northern portion of the Eastern Array footprint. (Nutmeg 1, p. 8; Nutmeg 1, Tab A, Figure 7 – Proposed Conditions; Nutmeg 2, response 35)
111. The proposed fenced Collector Substation would be rectangular with dimensions of approximately 224 feet by 168 feet, and it would have an 18-foot wide access gate on the northern side. (Nutmeg 1, Tab A, Figure 7 – Proposed Conditions; Nutmeg 1, Tab G – Drawing No. C-042)
112. The proposed Collector Substation would be constructed on top of compacted soil topped with crushed stone. Concrete foundations would be installed to support the aboveground substation components. (Nutmeg 2, response 36)
113. The Collector Substation would include a generator step-up transformer (GSU) to raise the voltage from 34.5-kV to 115-kV. (Nutmeg 1, pp. 8-9)
114. 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 point of the interconnection at which the proposed project's energy would be delivered to the ISO-NE grid. (Tr. 3, pp. 136-137)
115. 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. (Nutmeg 1, p. 9; Nutmeg 1, Tab A, Figure 7 – Proposed Conditions; Nutmeg 8, response 85)
116. 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. (Nutmeg 1, p. 14)
117. The Project would require that Scitico Substation be modified from a single bus to a three breaker ring configuration with a new terminal structure. Specifically, the following modifications are proposed at Scitico Substation and would not expand the fenceline of the substation.
 - a) Replacement and relocation of the existing #1976 Line wood monopole structure located within the Eversource ROW outside the substation fence with a new weathering steel monopole;
 - b) Replacement and relocation of one 115-kV galvanized steel dead-end terminal structure located within the Scitico Substation fence;
 - c) Relocation of the existing #1976 Line conductor and appurtenant equipment from the existing structure to the new terminal structure;
 - d) Installation of a new 115-kV galvanized steel cable termination structure with lightning arresters within the Scitico Substation fence for the underground cable connection;
 - e) Installation of one 115-kV motor-operated disconnect switch on the cable termination structure;
 - f) Installation of three 115-kV coupling capacitor voltage transformers on the cable termination structure; and
 - g) Installation of the 115-kV underground cable from the POI with Nutmeg's solar facility.(Nutmeg 1, p. 14; Nutmeg 8, response 84)

118. If approved, the Petitioner expects that the equipment and modifications at the Scitico Substation necessary to accommodate the proposed project's interconnection and the underground transmission line would be considered as part of any Development and Management Plan ordered by the Council. (Nutmeg 2, response 32; Tr. 3, pp. 135-136)
119. 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 1, p. 14)
120. The proposed project received Section I.3.9 approval from ISO-NE on November 8, 2016. Section I.3.9 approval encompasses an electric transmission line upgrade. (Nutmeg 1, p. 14; Council Administrative Notice Item No. 27 – 2017 RSP, p. 16 – ISO-NE Transmission, Markets, and Services Tariff)
121. Nutmeg entered into a small generator interconnection agreement with ISO-NE and Eversource on July 5, 2017. (Nutmeg 1, p. 14)

Project Construction

122. On November 28, 2018, DEEP accepted Nutmeg's application for a General Permit and subsequently approved such application. (Nutmeg 4; Nutmeg 12)
123. 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. (Nutmeg 1, pp. 10-11)
124. The proposed construction sequence would be the following:
 - a) Perform pre-construction tasks including demarcation of clearing limits, cut trees above ground (retaining stumps) in frozen conditions, relocate/remove tobacco barns (as applicable), conduct environmental restriction and safety training, and hold pre-construction meetings;
 - b) Develop the internal access roads and the staging area (Major Phase 1)*;
 - c) Clear and grub the Eastern Array area (Major Phase 2)*;
 - d) Install solar equipment in the Western Array (Major Phase 3)*; and
 - e) Install solar equipment in the Eastern Array and install the Collector Substation (Major Phase 4)*.

*The four major phases would include the use temporary stormwater controls until the site is stabilized.

(Nutmeg 2, response 65; Nutmeg 1, pp. 12-13)

125. Of the approximately 162 acres on the subject property, development area would be approximately 131 acres. Of the 131 acres, approximately 91 acres would be cleared and grubbed to allow for the construction and operation of the proposed project and to minimize shading impacts. (Nutmeg 1, pp. V and 9)
126. Selective vegetation management is proposed to be employed on approximately five acres surrounding the identified vernal pool habitat. (Nutmeg 1, p. 9)
127. The site would be graded around the access roads, Collector Substation and to create stormwater basins. (Nutmeg 2, response 60)

128. Given the relatively gradual slopes throughout the site, significant grading is not proposed in order to accommodate the solar arrays. Within the solar array areas, micro-grading, or grading of existing undulations, would occur prior to the installation of the solar array. (Nutmeg 2, response 60)
129. The proposed project would require approximately 18,000 cubic yards of cut and 1,900 cubic yards of fill. The net cut (or topsoil) would be distributed in a broadcast manner on-site and stabilized within the limits of work and would also comply with the Farmland Soil Mitigation Plan. (Nutmeg 2, response 60)
130. The proposed rack posts would average approximately 10 to 16 feet in length, of which, about six to nine feet (or the final engineered depth) would be embedded in the ground. Nutmeg proposes to install the rack posts via pile driving. The pile driving process involves a hydraulic machine that uses a vibratory hammer operation to drive the posts into the ground. (Nutmeg 2, response 55; Tr. 1, p. 19; Nutmeg 12, p. 4)
131. No blasting would be expected to be required for the construction of the proposed project. However, in the unlikely event that bedrock is encountered and post embedment depths are not achieved, the Petitioner would utilize a drill drive technique. Once post holes are drilled, the posts would then be driven into the ground to achieve the proper depth. (Nutmeg 2, response 64)
132. Approximately 6.5 acres would be designated for use as a temporary laydown area within the northern portion of the proposed project development area and adjacent to the Collector Substation. The laydown area would be used during construction for component delivery, off-loading and storage. This area would employ appropriate erosion controls, which would be kept in place until the proposed project site is determined to be suitable stable. (Nutmeg 1, p. 9)
133. If approved, Nutmeg would commence construction during the fourth quarter of 2019 with mobilization of equipment and land clearing efforts. Further site work and land preparation would be expected to be complete by the end of the third quarter of 2020. Final site stabilization, testing and commissioning would be expected to be complete in the fourth quarter of 2020: (Nutmeg 1, p. 10)
134. 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 Sunday construction hours may be required. Nutmeg proposes to limit pile driving construction activities to the hours of 9 a.m. and 5 p.m. Final construction hours would be included in the Development and Management Plan. (Nutmeg 1, p. 10; Nutmeg 2, response 66; Nutmeg 12, p. 4)

Traffic

135. The proposed project is expected to have a short-term impact on traffic flow during construction. (Nutmeg 1, p. 20)
136. Nutmeg expects that construction vehicles would utilize Interstate 91 and Route 141, depending on their point of origin. From there, construction vehicles would utilize the gated entry point at the primary access road entrance on Broad Brook Road. (Nutmeg 1, pp. 9 and 20)
137. Prior to project construction, a traffic control plan would be developed in consultation with DOT and the Town of Enfield Public Works. (Nutmeg 1, p. 20)

138. Once constructed, the project would generally not require vehicle activity other than for minimal maintenance purposes. (Nutmeg 1, p. 20)

Facility Operation

139. The estimated capacity factor of the proposed project would be approximately 22.8 percent in the first year of operations and would average about 21.3 percent over a 30-year life. (Nutmeg 2, response 17)
140. The proposed project would be expected to produce approximately 37,000 Megawatt-hours (MWh) of electrical energy per year. (Nutmeg 2, response 14)
141. As the solar panels age, the peak power output would decline by approximately an average of 0.5 percent per year after the first year of operations. (Nutmeg 2, response 19)
142. The Petitioner plans for a 30-year operational life of the solar facility, with an opportunity for a lifetime of 50 years or more with equipment replacement and repowering. This presumes that there would be an available market for energy and/or RECs or additional contracting opportunity at the end of the existing 20-year term of the PPAs. (Nutmeg 2, responses 5 and 7; Nutmeg 1, Tab L – Decommissioning Plan, p. 1)
143. The solar facility cannot operate as part of a microgrid. The current contractual obligations under the PPAs and the generator interconnection agreement do not contemplate operations as a microgrid. Moreover, microgrid functionality would require the proposed project to have an energy storage component (e.g. battery storage), which is not included in the design. (Nutmeg 2, responses 20 and 23)

Project Decommissioning

144. At the end of the proposed project's useful life*, 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."

*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.
(Nutmeg 2, response 7; Nutmeg 8, response 94; Nutmeg 1, Tab L – Decommissioning Plan, p. 1)

Public Safety

145. 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. (Nutmeg 1, p. 19; Nutmeg 2, responses 38 and 43)
146. 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. (Nutmeg 2, response 43)

147. 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. (Nutmeg 1, p. 2; Nutmeg 2, response 44)
148. 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. All disconnect switches would be clearly marked for use in an emergency. The disconnect switches would isolate a single combiner box worth of DC power. First responders would not have the ability to shut down the entire facility, which is consistent with industry best practices. NextEra 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. (Nutmeg 2, response 44; Nutmeg 1, p. 2; Tr. 1, p. 40)
149. The Collector Substation would include a high-voltage circuit breaker for interruption of fault current and a disconnect switch for manual isolation. Instrument transformers would be installed for the protection and control of facilities and communications equipment. (Nutmeg 1, pp. 8-9)
150. 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. (Nutmeg 2, response 44; Nutmeg 1, p. 2)
151. Adequate access for fire and emergency service equipment would be provided to the proposed facility via the proposed access roads. A secondary access point off of Bailey Road would be available for emergency access. (Nutmeg 1, p. 2)
152. The proposed solar panels would be designed to withstand a wind load of 2,400 Pascals (Pa) and snow load of 5,400 Pa, or about 50.1 pounds per square foot (psf) and 113 psf, respectively. (Nutmeg 3)
153. The angular mounting of the solar panels would allow most snow and ice to slide off of the panels and onto the ground once the sun rises and begins to warm the panels. 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 is approximately 30 to 35 psf. (Nutmeg 2, response 68)

Electric and Magnetic Fields

154. Electric fields (EF) and magnetic fields (MF) are two forms of energy that surround an electrical device. Transmission lines, for example, are a source of both EF and MF. (Council Administrative Notice Item No. 46 – Council's Best Management Practices for the Construction of Electric Transmission Lines in Connecticut)
155. EF is produced whenever voltage is applied to electrical conductors and equipment. Electric fields are typically measured in units of kilovolts/meter. As the weight of scientific evidence indicates that exposure to electric fields, beyond levels traditionally established for safety, does not cause adverse health effects, and as safety concerns for electric fields are sufficiently addressed by adherence to the National Electrical Safety Code, as amended, health concerns regarding Electric and Magnetic Fields (EMF) focus on MF rather than EF. (Council Administrative Notice Item No. 46)

156. MF is produced by the flow of electric currents. The magnetic field at any point depends on the characteristics of the source, the arrangement of conductors, the amount of current flow through the source, and the distance between the source and the point of measurement. Magnetic fields are typically measured in units of milligauss (mG). (Council Administrative Notice Item No. 46)
157. International health and safety agencies, including the World Health Organization, the International Agency for Research on Cancer (IARC), and the International Commission on Non-Ionizing Radiation Protection (ICNIRP), have studied the scientific evidence regarding possible health effects from MF produced by non-ionizing, low-frequency 60-Hertz alternating currents in transmission lines. Two of these agencies attempted to advise on quantitative guidelines for mG limits protective of health, but were able to do so only by extrapolation from research not directly related to health: by this method, the maximum exposure advised by the International Commission on Electromagnetic Safety (ICES, part of IARC) is 9,040 mG, and the maximum exposure advised by the ICNIRP is 2,000 mG. Otherwise, no quantitative exposure standards based on demonstrated health effects has been set world-wide for 60-Hertz MF, nor are there any such state or federal standards in the U.S. (Council Administrative Notice Item No. 46)
158. 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. (Nutmeg 8, response 85)
159. The maximum MF level over the proposed underground transmission line (under peak load conditions) would be approximately 24.4 mG. (Nutmeg 8, response 86; Council Administrative Notice Item No. 46)
160. Nutmeg's proposed Collector Substation and inverter/transformer pairs would not be expected to materially affect MF levels beyond the boundaries of the subject property. (Nutmeg 8, response 88)
161. The proposed modifications to Eversource's Scitico Substation would not materially affect MF levels at the boundaries of the property that the substation is located on. The modifications that would contribute most to changes in MF levels would be from the modifications to or the addition of transmission lines, rather than the substation equipment. However, the proposed structure relocations (within and outside the substation fence line) and the installation of approximately 500 feet of underground transmission to connect to the Collector Substation would not be expected to materially affect magnetic field levels at the boundaries of the subject property. (Nutmeg 8, response 87)

Aviation Safety

162. Bradley International Airport is located in Windsor Locks and is approximately eight miles west of the proposed project site. (Nutmeg 1, p. 22)
163. By letters dated May 21, 2018, the Federal Aviation Administration (FAA) issued Determinations of No Hazard to Air Navigation (No Hazard Determinations) for the proposed project based on Nutmeg's filings for each of the four corners of the proposed project site. The No Hazard Determinations require that Nutmeg provide notice to the FAA within 5 days after construction reaches its greatest height. (Nutmeg 1, Tab R – No Hazard Determinations; Nutmeg 2, response 42)
164. The No Hazard Determinations expire on November 21, 2019, unless construction commences or it is extended/revised or terminated by the FAA. (Nutmeg 1, Tab R – No Hazard Determinations)

165. The No Hazard Determinations are based on review of possible obstructions to air space, not glint/glare review. (Tr. 1, p. 16; Nutmeg 1, Tab R – No Hazard Determinations)
166. No marking or lighting would be required for aviation safety. (Nutmeg 1, Tab R – No Hazard Determinations)
167. 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 1, p. 22; Tr. 1, pp. 15-17; Council Administrative Notice Item Nos. 17, 18 and 19)
168. 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. (Tr. 1, p. 16; Council Administrative Notice Item Nos. 17, 18 and 19)
169. According to the Federal Aviation Administration's Technical Guidance for Evaluating Selected Solar Technologies on Airports (FAA Solar Guide), 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. In comparison, the FAA Solar Guide indicates 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. (Nutmeg 9, response 95; Council Administrative Notice Item No. 18 – FAA Solar Guide, pp. 37-38)

Environmental Effects

Air Quality

170. During construction of the proposed project, any air emissions effects would be temporary and controlled by enacting appropriate mitigation measures, e.g. water for dust abatement and avoiding mass early morning vehicle startups. (Nutmeg 1, p. 21)
171. During operation, the proposed project would not produce air emissions of regulated air pollutants or GHGs. Thus, no air permit would be required. (Nutmeg 1, p. 21)
172. The Petitioner contends that the project would meet DEEP air quality standards. (Nutmeg 1, p. 34)
173. 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 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. (Nutmeg 1, Tab M – Life Cycle Greenhouse Gas Assessment, pp. 1,7; Tr. 3, p. 130)

Water Quality

Hydrology

174. The Petitioner contends that the proposed project would meet DEEP water quality standards. (Nutmeg 1, p. 34)
175. The proposed project would not be located within a 100-year or 500-year flood zone. (Nutmeg 1, p. 30 and Tab A – Figure 8)

176. The proposed project would not be located within a DEEP-designated Aquifer Protection Area (APA). (Nutmeg 1, Tab A – Figure 5; Council Administrative Notice Item No. 94 – DEEP APA Map of Town of Enfield)
177. The proposed project would not be located within an area of contribution to a public water supply well. (Nutmeg 1, Tab A – Figure 5)
178. Portions of the Town are served by Connecticut Water and Hazardville Water Company, including residences located north of the proposed site along Bailey Road. Other residences in proximity to the proposed project have private wells. However, no impacts to private wells would be expected. (Nutmeg 1, p. 29)
179. Due to the composition of the proposed solar rack posts (i.e. galvanized steel) and the limited amount of post material that would be in contact with the ground, no adverse impacts to groundwater quality would be expected. Galvanized steel is also used in potable water systems. (Nutmeg 1, p. 29; Nutmeg 2, response 55)
180. Regarding the transformer/inverter pairs, such transformers would have the manufacturer provided casing as the primary oil containment measure. The transformers would have secondary oil containment comprised of either a concrete basin or an impervious liner shell filled with gravel. A detailed Spill Prevention Control and Countermeasure Plan (SPCCP) would be prepared by a licensed Professional Engineer (P.E.). The SPCCP would meet all federal regulatory requirements. (Nutmeg 1, p. 8)
181. The GSU (located in the Collector Substation) would also be subject to a SPCCP prepared by a P.E. and in compliance with federal regulatory requirements. (Nutmeg 1, p. 9)
182. While manual cleaning of the solar modules would not be anticipated, should it be required, the modules would be cleaned with low-pressure water absent the use of cleaning solvents or chemicals that could have a potential negative impact on water quality. (Nutmeg 1, response 69)

Stormwater

183. DEEP retains final jurisdiction over stormwater management. (CGS §22a-430b; DEEP General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities (DEEP-WPED-GP-015); Council Administrative Notice No. 54– Petition No. 1312, DEEP Comment Letter, September 21, 2017).
184. 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 1, p. 30)
185. Nutmeg would also comply with the recommendations from DEEP outlined in “Stormwater Management at Solar Farm Construction Projects” dated September 8, 2017 (2017 DEEP Stormwater Recommendations). (Nutmeg 1, p. 30; 2017 DEEP Stormwater Recommendations received November 29, 2018)
186. The Petitioner would promote and maintain vegetation within the solar array rows and beneath the panels as part of the Stormwater Pollution Control Plan (SWPCP) and in accordance with the 2017 DEEP Stormwater Recommendations, the 2004 Stormwater Manual and the 2002 E&S Guidelines. (Nutmeg 2, response 70)

187. 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 includes routine inspections and maintenance. (Nutmeg 8, response 92)
188. 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 Petitioner contends that the only solar panels that would be considered impervious would be the most up-gradient panels in each subcatchment. (Nutmeg 1, Tab K – Stormwater Management Report, pp. 2-4 and 2-5)
189. The analysis of existing conditions determined that the proposed permanent stormwater management measures would manage stormwater on site such that the rate and volume stormwater would not increase compared to existing conditions. (Nutmeg 12, p. 3)
190. The Petitioner would maintain the permanent stormwater management measures for the life of the project. (Nutmeg 12, p. 3)

Wetlands and Watercourses

191. The Inland Wetlands and Watercourses Act (IWWA), CGS §22a-36, *et seq.*, contains a specific legislative finding that the inland wetlands and watercourses of the state are an indispensable and irreplaceable but fragile natural resource with which the citizens of the state have been endowed, and the preservation and protection of the wetlands and watercourses from random, unnecessary, undesirable and unregulated uses, disturbance or destruction is in the public interest and is essential to the health, welfare and safety of the citizens of the state. (CGS §22a-36, *et seq.*)
192. The IWWA grants regulatory agencies with the authority to regulate upland review areas in its discretion if it finds such regulations necessary to protect wetlands or watercourses from activity that will likely affect those areas. (CGS §22a-42a)
193. The IWWA forbids regulatory agencies from issuing a permit for a regulated activity unless it finds on the basis of the record that a feasible and prudent alternative does not exist. (CGS §22a-41)
194. 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. (Nutmeg 2, response 52)
195. The Scantic River watershed is approximately 170 square kilometers and extends into the Towns of Hampden and Somers. The watershed includes a variety of land uses, primarily agricultural, residential, commercial, recreational, and undeveloped woodland. (Nutmeg 1, Tab K – Stormwater Management Report, p. 3-5)
196. 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. (Nutmeg 1, Tab K – Stormwater Management Report, p. 3-5)

Vernal Pool

197. The first season of vernal pool surveys at the proposed site were performed by Nutmeg on April 17, 2017 and May 2, 2017. A second season of vernal pool surveys were performed during the spring breeding season of 2018. Specifically, such surveys were conducted on April 10 and 11, 2018 and May 2 and 3, 2018. (Nutmeg 1, Tab D – Environmental Site Conditions Report, p. 10)
198. During the 2017 and 2018 surveys, amphibian breeding activity was observed in an excavated vernal pool located near the center of the study area. See Figure 4. (Nutmeg 1, Tab D – Environmental Site Conditions Report, p. 10)
199. During the 2017 wetland delineation, the excavated pool was not determined to be a jurisdictional wetland due to the lack of hydric soils and limited hydrophytic vegetation growing in the pool. (Nutmeg 1, Tab D – Environmental Site Conditions Report, p. 10; Tr. 1, p. 72)
200. This pool was revisited during a general herpetological inventory on May 14 through 16, 2018 and June 18, 2018. See Figure 4. (Nutmeg 1, Tab D – Environmental Site Conditions Report, p. 10)
201. An active recreational vehicle trail is located adjacent to the pool area, and vehicles likely utilize the woods road periodically. The pool is surrounded by red maple and paper birch in the tree stratum with with mountain laurel, red maple and highbush blueberry growing sparsely in the shrub stratum. Very few herbaceous plants were observed and included evergreen wood fern and and eastern spicewintergreen. (Nutmeg 1, Tab D – Environmental Site Conditions Report, pp. 10-11)
202. 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. (Nutmeg 1, Tab D – Environmental Site Conditions Report, pp. 10-11)
203. 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* and spotted salamanders in most years.

*On particularly wet years, the pool may still produce a metamorph of (for example) wood frogs. (Nutmeg 1, Tab D – Environmental Site Conditions Report, p. 11; Tr. 1, pp. 73-77)
204. 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. (Nutmeg 1, p. 28; Council Administrative Notice Item No. 90)
205. 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.) See Figure 4. (Tr. 1, pp. 75-77; Nutmeg 8, response 91)
206. The nearest point of proposed limits of work (i.e. selective trimming) would be no closer than 100 feet from the vernal pool. (Nutmeg 1, Tab A – Figure 7)

207. 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 within the next five years. Clearing impacts would be minimized through hand cutting for incompatible vegetation, using chain saws or brush saws, and loopers or hand pruners. 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. See Figure 4. (Nutmeg 1, pp. 28, 32)
208. As an alternative, if the vernal pool were to be filled, it would be possible to locate solar panels in this area and have an incremental gain in solar panel quantity. However, more clearing would need to be associated with the project because the tree line would then be on steeper slopes (approximately 20 percent and higher) to the east of the array. Then shading to the panels would increase, and Nutmeg would require increased setback. (Tr. 3, pp. 132-133; Nutmeg 1, Tab A, Figure 7 – Proposed Conditions; Nutmeg 1, p. 27)
209. Clearing around or filling in the vernal pool or within the directional buffer is not expressly prohibited under the terms of the applicable land agreements except as otherwise prohibited by law. (Nutmeg 11, Late Filed Exhibit (d))
210. Because the proposed plan to selectively maintain vegetation around the vernal pool would maintain the tree line, locating panels within the vernal pool area would increase visibility of the project’s eastern array. (Tr. 3, pp. 133-134; Nutmeg 1, Tab A, Figure 7 – Proposed Conditions)
211. Locating solar panels within the vernal pool area would require a redesign of the stormwater management plan to address the additional runoff from the vegetation conversion in these areas, specifically during the construction phase. (Tr. 3, pp. 132-134)
212. While some solar panels could be moved from the (end of the) “rectangular” area* on the southern limits of the Eastern Array area to the (hypothetically) filled vernal pool area, Nutmeg has concerns about downstream effects of potential change in stormwater runoff, along with NDDB concerns, and potential conflicts with DEEP’s concurrence with already proposed vernal pool impact mitigation measures. Such changes could jeopardize the proposed project’s timeline due to such required redesign and recertifications.

*This rectangular area contains steep slopes.

(Tr. 3, pp. 146-147; Nutmeg 1, Tab 1 – Figure 7; Nutmeg 11, Late Filed Exhibit (b) – Limits of Test Pits Not Excavated)

Visibility

213. 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. (Nutmeg 2, response 41)
214. Generally, the proposed project is surrounded by an existing vegetative buffer along the northern, eastern, and southern limits of the project area. (Nutmeg 1, Tab A – Figure 7)

215. 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) and 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 plantings which would include a mix of purple coneflower*, cardinal flower*, scarlet beebalm*, largeflower tickseed, black-eyed susan*, coastal sweet pepperbush*, black chokeberry, winterberry, eastern red cedar, and common juniper.

*These are pollinator-friendly species.

(Nutmeg 1, p. 10; Nutmeg 12; Nutmeg 1, Tab A – Figure 7)

216. 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 which 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. (Nutmeg 1, Tab A – Figure 7; Tr. 3, pp. 131-132)
217. 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. SRSP consists of several separated parcels totaling 784 acres along the Scantic River in the Towns of Enfield, East Windsor and Somers. The Powder Hollow Section of the SRSP is located approximately 0.5 miles to the northwest of the proposed site. Smaller, non-contiguous portions of the SRSP are located along the Scantic River approximately 0.25-mile north 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. (Nutmeg 1, p. 23)
218. Neglecting any equipment inside the proposed Collector Substation, the 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. (Nutmeg 2, response 48)
219. The tallest proposed structures to be located at the proposed Collector Substation would be two lightning masts, approximately 53 feet in height. The remaining components of the Collector Substation would be less than 30 feet in height. (Nutmeg 2, response 49)
220. Temporary lighting would be used at the staging area during construction. Site lighting or overhead lighting are not proposed for the solar facility project. (Nutmeg 1, p. 23)
221. A small exterior motion-activated light would be installed on 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 NEC. (Nutmeg 1, p. 23)

Noise

222. The sources of noise would be 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 analysis was originally performed based on 12 inverter/transformer pairs, but increasing this number to 14 would not materially change anticipated sound levels for the nearby residences. (Nutmeg 1, Tab Q, p. 1; Nutmeg 2, response 40; Nutmeg 1, p. 8)
223. The sources of noise for the proposed project would only operate in the daytime when electricity would be produced by the solar facility. (Nutmeg 1, Tab Q, p. 1)
224. The proposed project would be considered Class B noise emitter, and its surrounding abutters are considered to be Class A receptors. The DEEP Noise Limit for a Class B source emitting to a Class A receiver is 55 dBA during the daytime. (Nutmeg 1, Tab Q, p. 2; Tr. 3, pp. 135 and 165; R.C.S.A. §22a-69-3.5)
225. The proposed facility would be in compliance with DEEP Noise Control Standards because the highest predicted sound level would be approximately 37 dBA at the residence located at 18 Bailey Road. (Nutmeg 1, Tab Q, pp. 2-3)
226. Construction noise is exempt from DEEP Noise Control Standards. (RCSA §22a-69-1.8(g))

Historic and Archaeological Resources

227. 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. (Nutmeg 2, response 10)
228. A Phase 1A Cultural Resources Assessment Survey Report (Phase 1A Report) dated August 2017 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. (Nutmeg 1, Tab S – Phase 1A Report, pp. 32-33)
229. In the Phase 1A Report, Heritage determined that, of the total land area under consideration for a proposed solar facility, approximately 130.51 acres retain no/low archaeological potential; 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. Since the no/low potential areas consist of previously disturbed, paved, mucky, and/or wet conditions, no additional archaeological investigation of these areas was recommended. However, Heritage recommended that the portion of the total acreage that has been 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). (Nutmeg 1, Tab S – Phase 1A Report, p. 33)

230. Heritage subsequently prepared an Addendum to the Phase 1A Report (Phase 1A Addendum) dated September 25, 2017 to take into account an additional five acres of land (or two parcels) to be added to the study area. One parcel is located in the eastern-central portion of the proposed project area. The other parcel is located south of the subject property. Heritage recommended that the western quarter of the eastern parcel be subject to the Phase 1B Survey. No additional archaeological examination of the southern parcel was recommended. (Nutmeg 1, Tab S – Phase 1A Addendum, pp. 1-3, Figure 1; Nutmeg 1, Tab A – Figure 7)
231. 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. (Nutmeg 1, Tab S – SHPO Letter dated November 27, 2017)
232. 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. Notwithstanding, 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. (Nutmeg 4, Phase 1B Report, Abstract and pp. 21-22; Tr. 1, p. 43)
233. 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. SHPO also recommended that a protection plan be formulated for the tobacco sheds located on the subject property that were initially proposed to be demolished, identified by SHPO as Building 12 and Building 13*, and that it be incorporated into any future development of the northern portion of the parcel. (Nutmeg 11, Late Filed Exhibit (b) – SHPO correspondence to Nutmeg dated January 2, 2019)
- *Building 12 is identified by Nutmeg as Tobacco Barn No. 3. Building 13 is identified by Nutmeg as Tobacco Barn No. 2. Specifically, Nutmeg proposes to demolish/remove Tobacco Barn No. 3, but relocate Tobacco Barn No. 2. See Figure 1 and Figure 5.
(SHPO correspondence to Nutmeg, dated February 7, 2019; Nutmeg 1, Tab A – Figure 7 and Tab S – Figure 18)
234. By letter to Heritage dated February 7, 2019, SHPO noted that the subject property, within a larger complex of historic farmstead, is potentially eligible for listing on the State Register of Historic Places for its association with the agricultural history of tobacco farming within the Connecticut River Valley. Nutmeg has agreed to ongoing consultation with SHPO regarding the future of the tobacco sheds. (SHPO correspondence to Nutmeg, dated February 7, 2019)

Geology

235. Bedrock geology beneath the proposed project survey area is identified as Portland Arkose. Arkose is a sandstone rich in feldspar, with quartz usually making up the dominant mineral and feldspars constituting at least 25 percent composition. (Nutmeg 1, Tab D – Environmental Site Conditions Report, p. 27)

236. Surface materials include till, thick till, sand and gravel, sand, and alluvium overlying sand and gravel. (Nutmeg 1, Tab D – Environmental Site Conditions Report, p. 27)
237. Soils are generally well drained silt-loam and sandy-loam. About 40 percent of the proposed project survey area soils have been regularly tilled for agricultural use. (Nutmeg 1, Tab D – Environmental Site Conditions Report, p. 27)
238. The Petitioner commissioned a geotechnical study and analyzed subsurface conditions in the fall of 2018. Bedrock was encountered at a depth of between 12 to 27 feet, which is below any anticipated earthwork or post installation depth associated with the proposed project. (Nutmeg 2, response 62)
239. The risk of seismic activity in the vicinity of the proposed project is low. (Nutmeg 2, response 62)

Wildlife

240. On August 28, 2017, a DEEP Natural Diversity Database (NDDB) Preliminary Assessment was provided to the Petitioner. This assessment identified that known extant populations of 14 state-listed species occur within or near the boundaries of the proposed site. (DEEP NDDB Letter dated August 28, 2017)
241. 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 pond mussel, eastern pearshell, Hooker's orchid, slimy sculpin, wood turtle, bridle shiner, savannah sparrow, vesper sparrow, eastern spadefoot toad, and eastern box turtle. (Nutmeg 1, Tab D – NDDB Letter dated August 28, 2017; Nutmeg 1, Tab D – Environmental Site Conditions Report, 7)
242. The petitioner completed a habitat survey of the project area for state-listed species referenced in the NDDB preliminary assessment letter, as well as a field survey for the presence of the eastern spadefoot toad, a bat acoustical survey, and a general herpetological survey. The Petitioner identified protection measures for the species. (Nutmeg 1, Tab D – Environmental Site Conditions Report, p. 11)
243. By letter dated August 3, 2018, DEEP indicated that it concurs with the best management practices included in Nutmeg's July 27, 2018 Herpetofauna Avoidance and Mitigation Plan* that would be implemented to protect state-listed amphibians and reptiles.

*While the Petition contains a Herpetofauna Avoidance and Mitigation Plan dated October 2, 2018, there are no material changes between the July 27, 2018 and the October 2, 2018 versions of the plan.

(Nutmeg 1, Tab D – Herpetofauna Avoidance and Mitigation Plan dated October 2, 2018; Nutmeg 1, Tab O – DEEP Letter dated August 3, 2018; Nutmeg 8, response 93)

Invertebrates

244. Due to past disturbance, the areas mapped as Windsor soil within the study area were determined to be unlikely to support the big sand tiger beetle, a state-listed Species of Special Concern; the dune ghost tiger beetle, a state-listed Endangered Species; the dark-bellied tiger beetle, a state-listed Threatened Species; and the ground beetle, a state-listed Species of Special Concern. Furthermore, the mapped area of Windsor loamy sand is located outside of the proposed project development area. The proposed project would be located on the eastern side of Broad Brook Road, which is well outside of the area of Windsor loamy sand area located to the west. Thus, the proposed project would be unlikely to affect the big sand tiger beetle. Therefore, suitable habitat for the species does not exist on the site and no protection measures are proposed. (Nutmeg 1, Tab D – Environmental Site Conditions Report, pp. 17-19)
245. The proposed project development area does not contain any coastal ponds, streams or rivers within its boundaries. The Scantic River is located north and outside of the proposed project area, and the study area does not contain any riparian areas. Thus, 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. Also, Nutmeg's stormwater plan addresses potential sedimentation and erosion impacts to off-site waters. (Nutmeg 1, Tab D – Environmental Site Conditions Report, pp. 19-20)

Plants

246. A habitat survey for the Hooker's orchid, a state-listed Species of Special Concern, was completed on August 1, 2017. 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. (Nutmeg 1, Tab D – Environmental Site Conditions Report, p. 21)

Fish

247. The proposed project development area does not have any freshwater streams or rivers within its boundaries. The Scantic River is located north and outside of the proposed project area, and the study area does not contain any riparian areas. Thus, based on a complete lack of suitable habitat, the slimy sculpin and the bridle shiner (both state-listed Species of Special Concern) are unlikely to occur at the proposed site. Also, Nutmeg's stormwater plan addresses potential sedimentation and erosion impacts to off-site waters. (Nutmeg 1, Tab D – Environmental Site Conditions Report, pp. 19-20)

Birds

248. Due to the presence of suitable foraging and nesting habitat within the study area, the savannah sparrow, a state-listed Species of Special Concern, 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. grasslands, vegetation and trees) clearing. Specifically, such clearing would occur between October 1 and March 31, to avoid any potential impacts to this species should it occur. (Nutmeg 1, Tab D – Environmental Site Conditions Report, p. 23)

249. 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 1, Tab D – Environmental Site Conditions Report, pp. 23-24)

Mammals

Bats

250. Nutmeg performed a bat acoustic survey between July 7 through July 11, 2017 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. (Nutmeg 1, Tab D – Environmental Site Conditions Report, p. 14)
251. The closest known NLEB hibernacula is in Granby, approximately nine miles southwest of the proposed project. No known NLEB maternity roost trees have been identified in Connecticut. (Nutmeg 1, Tab D – Environmental Site Conditions Report, p. 14)
252. 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. (Nutmeg 1, Tab D – Environmental Site Conditions Report, p. 16)
253. Tree clearing and vegetation clearing restrictions would also reduce potential impacts to forest-dwelling and grassland nesting bird species that may occur. (Nutmeg 1, Tab D – Environmental Site Conditions Report, p. 30)

Reptiles

Turtles

254. 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. (Nutmeg 1, Tab D – Environmental Site Conditions Report, pp. 21-25)
255. For the protection of the eastern box turtle and the wood turtle, Nutmeg would implement the Herpetofauna Avoidance and Mitigation Plan. Such plan includes exclusion fence that would be coordinated with the stormwater phasing plan and installed to enclose the entire work area at the limit of disturbance, keeping turtles outside of active construction zones. Fencing would consist of DOT-grade silt fence typically at least two feet high with at least four inches buried into the soil. The exclusion fence would be maintained throughout the entire active season for reptiles (i.e. March through November). (Nutmeg 1, Tab D – Herpetofauna Avoidance and Mitigation Plan, pp. 2-3)

256. Following initial installation of the exclusion fence, a search would be made within the enclosed areas to detect and remove any target turtle species. The environmental monitor would be responsible for the pre-construction survey to ensure that wood turtles or eastern box turtles are not trapped inside the enclosed area(s). After the project is underway, the environmental monitor (or a designated contractor) would conduct regular (weekly) sweeps of the the exclusion fencing to ensure it is functioning properly and identify any reptiles that are near the fencing. Any eastern box turtles or wood turtles found within the work area would be carefully collected and relocated to appropriate habitat nearby and safely outside the active construction zone, and the event would be reported to the appropriate personnel at DEEP. (Nutmeg 1, Tab D – Herpetofauna Avoidance and Mitigation Plan, pp. 3-4)
257. The designated environmental monitor would also be responsible for creating a training curriculum prior to commencement of construction in order to train new contractor personnel on the identification and habits of the wood turtle and eastern box turtle. (Nutmeg 1, Tab D – Herpetofauna Avoidance and Mitigation Plan, pp. 3-4)

Amphibians

Vernal Pool Species

258. 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. (Nutmeg 1, Tab C – Vernal Pool Survey and General Herpetological Inventory, p. 1)
259. During a survey of the vernal pool conducted on April 10 and 11, 2018 and May 2 and 3, 2018, two of the following vernal pool indicator species were found: six wood frog egg masses and four spotted salamander egg masses. During a previous 2017 assessment of the pool, two wood frog egg masses and ten spotted salamander egg masses were found. (Nutmeg 1, Tab C – Vernal Pool Survey and General Herpetological Inventory, p. 7)

Eastern Spadefoot Toad

260. During May, June and July 2018, surveys were conducted to attempt to detect the presence of the eastern spadefoot toad, a State-listed Endangered Species. (Nutmeg 1, Tab D – Eastern Spadefoot Toad Survey, p. 5; Nutmeg 1, Tab D – Environmental Site Conditions Report, p. 24)
261. Recorded eastern spadefoot toad occurrences in eastern Connecticut coincide well with Hinckley Soils. (Nutmeg 1, Tab D – Eastern Spadefoot Toad Survey, p. 5, 7)
262. DEEP's Predicted Spadefoot Toad Habitat map shows no predicted spadefoot toad habitat at the proposed solar facility site. The nearest predicted habitat is approximately 1,500 feet east of the eastern boundary of the proposed solar facility site. (Nutmeg 1, Tab D – Eastern Spadefoot Toad Survey, p. 5, 7)
263. The most productive searches for eastern spadefoot toads in New England occur during rainy nights from mid-June through mid-September when the average air temperature is over 68 degrees Fahrenheit (F). However, the eastern spadefoot toads have been observed to be active as early as April on rainy nights with air temperatures around 55 degrees F. (Nutmeg 1, Tab D – Eastern Spadefoot Toad Survey, p. 2)

264. During the site surveys, a total of 26 person-hours were spent on site surveys. Site surveys included both visual encounter surveys and nocturnal vehicular surveys. During the visual encounter surveys, an experienced herpetologist would selectively search areas of habitat most likely to yield amphibians and reptiles. The nocturnal vehicular surveys involved slowly driving along roads at night during and after precipitation events when amphibians are typically the most active to observe individuals on roadways and/or listen for choruses. Flashlights were used to supplement headlights. No eastern spadefoot toads were observed during these site surveys. (Nutmeg 1, Tab D – Eastern Spadefoot Toad Survey, p. 7)
265. The proposed solar facility site lacks Hinckley Soils, dense vegetative cover and predicted habitat in DEEP’s model. Furthermore, based on the results of the surveys, it is highly unlikely the eastern spadefoot toad occurs at the proposed site. (Nutmeg 1, Tab D – Eastern Spadefoot Toad Survey, p. 7; Tr. 1, p. 81)
266. For the protection of the eastern spadefoot toad, the Herpefauna Avoidance and Mitigation Plan would be implemented with similar protective measures that would be used to protect the eastern box turtle and the wood turtle. (Nutmeg 1, Tab D – Herpetofauna Avoidance and Mitigation Plan, pp. 1-7)

Core Forest

267. Of the forested land in the state, 46 percent is considered “core forest,” defined as being outside the “edge effect,” over 300 feet in all directions from non-forested areas. Small core forests are core forest patches that are less than 250 acres. Medium core forests are core forest patches that are between 250 acres and 500 acres. Large core forests are core forest patches that are greater than 500 acres. (Council Administrative Notice Item No. 54 – Petition No. 1312 Finding of Fact #268)
268. The state’s *Green Plan* identifies the value of large-scale, intact forest areas as they provide “key habitat linkages” for wildlife species. Other benefits identified in the *Green Plan* include, but are not limited to, the forests ability to absorb rainwater and slow runoff, filter pollutants and regulate air temperature. (Council Administrative Notice Item No. 54 – Petition No. 1312 Finding of Fact #269)
269. The 2004 Environment Canada Report cited by the University of Connecticut Center for Land Use Education and Research suggests that 250 acres of upland forest should be considered the absolute minimum forest patch size needed to support area-sensitive edge-intolerant bird species. The recommended minimum forest patch size is 500 acres, as this is likely to provide enough suitable habitat to support more diversity of interior forest species. (Council Administrative Notice Item No. 54 – Petition No. 1312 Finding of Fact #270)
270. 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. (Nutmeg 2, response 46; CGS§16-50k(a))

Agriculture

271. The statutory mission of the Governor's Council for Agricultural Development (GCAD) is to develop a statewide plan for Connecticut agriculture. In 2012, GCAD recommended DOAg create an agriculture-friendly energy policy that includes, but is not limited to, on-farm energy production to reduce costs and supplement farm income, agricultural net metering for power production and transmission, and qualification of agricultural anaerobic digestion projects for zero-emissions renewable energy credits (ZRECs). (Council Administrative Notice Item No. 54 – Council Petition No. 1312, FOF #277)
272. Agriculture in Connecticut is likely to be adversely impacted by climate change. It is most affected by changes in temperature and both the abundance and lack of precipitation. The top five most imperiled agricultural products are maple syrup, dairy, warm weather produce, shellfish and apple and pear production, but there are opportunities for production expansion with the future climate, including, but not limited to, biofuel crops, witch hazel and grapes. (Council Administrative Notice Item No. 76 – Connecticut Climate Change Preparedness Plan)
273. Adaptation strategies for climate change impacts to agriculture include promotion of policies to reduce energy use, conserve water and encourage sustainability. (Council Administrative Notice Item No. 76 – Connecticut Climate Change Preparedness Plan)
274. Pursuant to C.G.S. §22-26aa, *et seq.*, DOAg administers the Statewide Program for the Preservation of Agricultural Land (SPPAL) The main objective of the voluntary program is to establish a land resource base consisting mainly of prime and important farmland soils. A permanent restriction on non-agricultural uses is placed on the deed of participating properties, but the farms remain in private ownership and continue to pay local property taxes. (C.G.S. §22-26aa, *et seq.*)
275. Connecticut preserved 1,289 acres of agricultural land in 2015, the most since 2009. Connecticut preserved 1,563 acres of agricultural land in 2016, the most since 2011. (Council Administrative Notice Item No. 80 – CEQ Report on Energy Sprawl dated February 3, 2017; Council Administrative Notice Item No. 54 – Petition No. 1312 Finding of Fact #281)
276. DOAg has not purchased any development rights for the proposed site as part of the SPPAL. (Nutmeg 2, response 9)
277. Public Act 490 is Connecticut's Land Use Value Assessment Law for Farm Land, Forest Land and Open Space Land that 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. (Nutmeg 1, p. 6; PA 490)
278. The proposed project would not qualify under Connecticut's Agricultural Virtual Net Metering Program because an agricultural virtual net metering facility is defined under C.G.S. §16-244u(a)(7)(B) as having a nameplate capacity rating of 3 MW or less. (C.G.S. §16-244u(a)(7)(B); Nutmeg 1, p. 1)
279. Prime Farmland Soils are defined by the United States Department of Agriculture (USDA) National Resources Conservation Service (NRCS) as having the ideal combination of chemical and physical characteristics to support crop production, such as for food, feed, forage, fiber and oil and seed crops. These soils are also considered important for pasture land, range land and forest land. (Council Administrative Notice Item No. 16 – USDA Soil Survey Manual; 7 C.F.R. §657.5 (2016) – Identification of Important Farmlands)

280. Farmland of Statewide Importance are soils which do not meet all of the requirements to be considered Prime Farmland Soils, but they are equally as important in the production of food, feed, forage or fiber crops. (Council Administrative Notice Item No. 16 – USDA Soil Survey Manual: 7 C.F.R. §657.5 (2016) – Identification of Important Farmlands)
281. Locally Important Farmland Soils do not meet the physical or chemical requirements of either Prime Farmland or Farmland of Statewide Importance soils, but they are still used for the production of food or fiber crops and support the local economy due to their productivity. (Council Administrative Notice Item No. 16 – USDA Soil Survey Manual: 7 C.F.R. §657.5 (2016) – Identification of Important Farmlands)
282. Two soil series mapped by USDA 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 Farmland of Statewide Importance. 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. See Figure 3. (Nutmeg 1, p. 31)
283. No Locally Important Farmland Soils have been mapped by USDA NRCS at the proposed site. (Nutmeg 1, p. 31)
284. A field assessment to confirm the presence of farmland soils was conducted on December 22, 2016. The soil investigation completed for the proposed site determined that the USDA NRCS mapping is mostly accurate, with small differences. (Nutmeg 1, p. 31)
285. The proposed disturbance areas for Prime Farmland Soils and Statewide Important Farmland Soils are listed below.
Project Soil Calculations:
Prime Farmland Soils Disturbed (Equipment Pads): ±0.050 Acres
Prime Farmland Soils Disturbed (Substation): ±0.689 Acres
Prime Farmland Soils Disturbed (Roads): ±1.705 Acres
Statewide Important Farmland Soils Disturbed (Equipment Pads): ±0.028 Acres
Statewide Important Farmland Soils Disturbed (Roads): ±1.239 Acres
Total Area of Agricultural Soils Disturbed: ±3.710 Acres
(Nutmeg 1, Tab A, Figure 10 – Mapped Soils)
286. The amount of soil disturbance from post installation would be a negligible portion of the total disturbed area. Mapped farmland soils (Prime Farmland and Statewide Important Farmland Soils) not disturbed for access road, equipment pad or collector substation installation would be maintained as meadow habitat throughout the life of the proposed project. (Nutmeg 2, response 12)
287. 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). (Nutmeg 1, Tab E – SMP, pp. 1-3)

288. 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 following criteria to be observed in the field:
- a) Availability of 12-inches of mineral material soils; and
 - b) Absence of stones, cobbles and boulders.
- (Nutmeg 1, Tab E – SMP, p. 2)
289. If the above 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. (Nutmeg 1, Tab E – SMP, p. 2)
290. Prior to construction, suitable areas would be identified and staked on-site. 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. (Nutmeg 1, Tab E – SMP, p. 2)
291. 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. (Nutmeg 1, Tab E – SMP, p. 3)
292. Compaction of soils within designated areas of important soils would be limited during construction. Compaction of subbase materials would be required in areas of access roads, equipment pads, the Collector Substation, and utility trenches to ensure proper construction. Long-term compaction outside of those areas identified would not be expected. (Nutmeg 1, Tab E – SMP, p. 3)
293. To further minimize compaction of important soils, delivery of project components and infrastructure would be located outside of the limits of important soils to the maximum extent practicable. (Nutmeg 1, Tab E – SMP, p. 3)
294. Restoration of disturbed Prime Farmland Soils and Farmland Soils of Statewide Importance 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. (Nutmeg 1, Tab E – SMP, p. 3)
295. 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 DOAg that the proposed project will not materially affect prime farmland. (See FOF #270.) (Nutmeg 2, response 46; CGS§16-50k(a))

Pollinator Habitat

296. 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. (CGS §16-50hh)
297. Of the proposed approximately 2,417 vegetative plantings, approximately 1,300 (or about 54 percent) would be “pollinator-friendly” plantings. (Nutmeg 12, p. 2)

298. The proposed pollinator-friendly plantings in the road grading area would include the following:
a) Coastal Sweet Pepperbush; and
b) Highblush Blueberry.
(Nutmeg 12, p. 2)

299. The proposed pollinator-friendly plantings as vegetative screening would include the following:
a) Purple Coneflower;
b) Cardinal Flower;
c) Scarlet Beebalm;
d) Black-eyed Susan; and
e) Coastal Sweet Pepperbush.
(Nutmeg 12, p. 2)

Neighborhood Concerns

300. Pursuant to C.G.S. § 16-50m, the Council, after giving due notice thereof, held a public comment session on Thursday, January 10, 2019 at 6:30 p.m. at the Enfield Town Hall, Council Chambers, 820 Enfield Street, Enfield. (Council's Hearing Notice dated December 7, 2018; Tr. 1, p. 1; Tr. 2, p. 1)

301. Seven interested persons provided oral limited appearance statements regarding the proposed facility, during the public comment session. (Tr. 2)

302. For limited appearance statements in favor of the proposed facility, concerns generally include, but are not limited to, the following:

- cleaner source of energy;
- reducing GHG emissions;
- ability to “rest” the farmland soil for 20+ years;
- appreciate Nutmeg’s due diligence in designing the project;
- attract new business;
- support jobs; and
- tax revenue.

(Tr. 2; Public Comment Record)

303. For limited appearance statements in opposition to the proposed facility, concerns generally include, but are not limited to, the following:

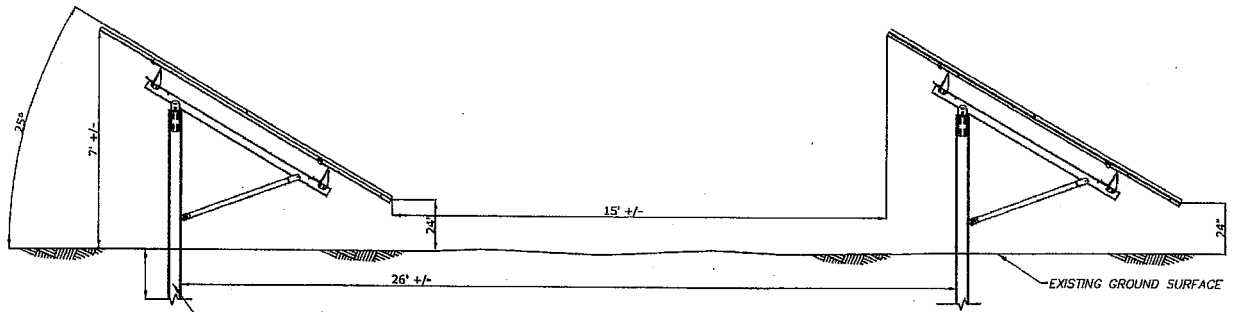
- visual impacts;
- invasive species control;
- zoning;
- protection of well water; and
- soil/land management.

(Tr. 2; Public Comment Record)

304. In response to neighborhood concerns, Nutmeg has taken a number of steps to address visual impact concerns of abutters. Such steps are noted below:
- a) Consolidated the proposed project by removing the array on the west side of Broad Brook Road, which is a source of concern for some residents on Taft Lane;
 - b) Developed a plan to provide approximately 1,570 linear feet of vegetative screening to areas of the Western Array with direct abutters (and increased the density of such screening per feedback received from the Town Council); and
 - c) Relocated Tobacco Barn Nos. 1 and 2 to the proposed project's northwest boundary to function as additional visual screening. See Figure 1.

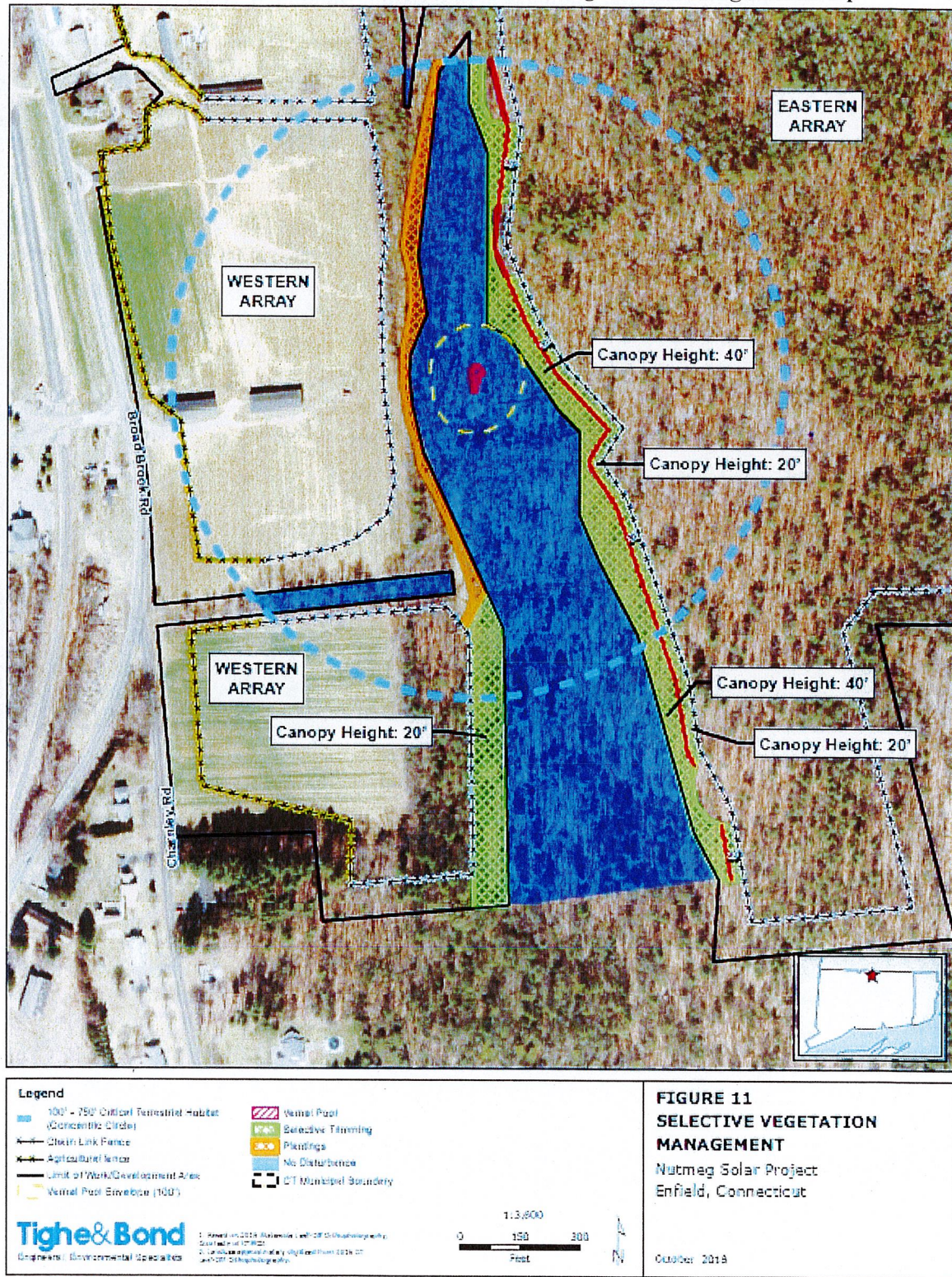
(Nutmeg 8, response 76)

Figure 2 – Proposed Solar Rack Side Elevation View



(Nutmeg 1, Tab G – Drawing No. C-042)

Figure 4 – Vernal Pool and Selective Vegetation Management Map



(Nutmeg I, Tab A – Figure 11)

Figure 5 – Aerial Photograph of Existing Buildings/Tobacco Barns



(Nutmeg I, Tab S – Phase IA Report, pp. 32-33)