STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

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VIA ELECTRONIC MAIL

February 15, 2018

Lee D. Hoffman, Esq.
Pullman & Comley, LLC
90 State House Square
Hartford, CT 06103-3702

RE: **PETITION NO. 1339** – Wallingford Renewable Energy 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 19.99 MW AC ground-mounted solar photovoltaic electric generating facility located on approximately 158 acres of 3 contiguous parcels consisting of the former Wallingford Landfill and 2 parcels owned by the Materials Innovation and Recycling Authority west of Pent Road and associated electrical interconnection to Wallingford Electric Division's Wallingford Substation in Wallingford, Connecticut.

Dear Attorney Hoffman:

The Connecticut Siting Council (Council) requests your responses to the enclosed questions no later than March 5, 2018. To help expedite the Council's review, please file individual responses as soon as they are available.

Please forward an original and 15 copies to this office, as well as a copy via electronic mail. In accordance with the State Solid Waste Management Plan, the Council is requesting that all filings be submitted on recyclable paper, primarily regular weight white office paper. Please avoid using heavy stock paper, colored paper, and metal or plastic binders and separators. Fewer copies of bulk material may be provided as appropriate.

Any request for an extension of time to submit responses to interrogatories shall be submitted to the Council in writing pursuant to §16-50j-22a of the Regulations of Connecticut State Agencies.

Sincerely,

Melanie A. Bachman
Executive Director

MB/MP

c: Council Members
Joe Jordan, Wallingford Renewable Energy LLC

Petition No. 1339
Interrogatories
Set One
February 15, 2018

Project Development

1. If the project is approved, identify all permits necessary for construction and operation and which entity will hold the permit(s).

2. In its Power Purchase Agreements (PPAs), is the Petitioner contracted to sell both the electricity and renewable energy certificates (RECs) it expects to generate with the proposed project? Provide the percentages to be sold to each public utility. Would any renewable electricity and/or RECs be sold to the Town of Wallingford?

3. Since the 20-year term of both PPAs is less than the 35-year term for the long-term lease agreement (or the approximately 35 to 40 year design service life of the project), what would the Petitioner do when the PPAs expire? Are there provisions for any extensions of time in the PPAs? Are there options to renew the PPAs?

4. Is the alternating current megawatt capacity of the facility fixed at a certain amount (e.g. 19.99 MW) per the PPAs and/or the RFP?

5. Would the petitioner participate in the ISO-NE Forward Capacity Auction? If yes, which auction(s) and capacity commitment period(s)?

Proposed Site

6. Describe the visibility of the proposed project from Quinnipiac River State Park.

7. Describe the visibility of the proposed project from the nearest residence.

Energy Production

8. Provide the megawatt output of the proposed project in direct current (DC). At 390 Watts DC each, approximately how many solar panels are proposed?

9. Identify the loss assumption for the proposed project. For example, would the proposed facility provide approximately 19.99 MW AC (total) at its points of interconnection?

10. What is the AC/DC ratio of the proposed project? What design considerations were used to determine the AC/DC ratio of the proposed project?

11. Page 11 of the Petition notes an angle of 10 degrees above the horizontal. Sheet C-113 shows an angle of 15 degrees (plus or minus one degree). Which angle is correct? Would the angle of the solar panels be the same for both the ballast-mount and post-mount rack configurations?

12. Explain why a solar panel orientation to the south with an angle of 10 or 15 degrees (as applicable) above the horizontal was selected for this facility. Is the project designed to maximize annual energy production or peak load shaving?

13. What is the projected capacity factor (expressed as a percentage) for the proposed project?

14. What is the efficiency of the photovoltaic module technology of the proposed project?

15. Would the power output of the solar panels decline as the panels age? If so, estimate the percent per year.

16. Can the project be designed to accommodate future potential battery storage? If so, please describe the function of the battery or other type of storage system? What prediction methods and reports has the petitioner used to assess total capacity in megawatts and annual energy production in kilowatt-hours for this project, and how are the proposed batteries or other type of energy storage incorporated into those predictions?

17. Would the impact of soft shading, such as air pollution or hard shading, such as bird droppings or weather events, such as snow or ice accumulation, hail, dust, pollen, etc. reduce the energy production of the proposed project? If so, was this included in the proposed projects capacity factor and/or loss assumptions? Would any of these expose the solar panels to damage? If applicable, what type of methods would be employed to clear the panels of the bird droppings, prey shells, snow and ice accumulation, hail, dust or pollen and at what intervals?

Site Components and Solar Equipment

18. Provide the specifications sheets for a) proposed inverters and b) solar photovoltaic panels.

19. Provide the dimensions for the transformer and inverter pads.

20. Figure 11 of the Petition provides an elevation view of electrical equipment. Approximately how tall is the tallest proposed piece of equipment?

21. What is the design wind speed of the solar panel mounts (both rack mounts and ballast mounts)? What prevents the solar panels from separating from either the racking or the foundation during high winds?

22. Referencing Sheet C-113 of the Petition, what is the approximate distance(s) between the ground and the top edges of the solar panels for both the post-mount configuration and the ballast-mount configuration?

23. Would existing access potentially require any upgrades such as additional gravel to make it suitable for the construction and maintenance of this proposed solar facility?

24. How wide is the aisle width between rows of solar panels (e.g. three feet)? Could the panel rows be installed closer together through panel angle redesign or change of equipment?

25. What is the color of the solar panels? Are other colors available? Is the glass casing reflective? Are there solar panels available with non-reflective glass? If so, what are the costs and benefits of each type?

26. Under Appendix A of the Petition, page 10 of the Stormwater Pollution Control Plan notes that, "The Project will not locate features within the 100-year floodplain..." Is any portion of the proposed project located within the 500-year flood zone? If yes, indicate which portion(s) of the project area are located within such flood zones, and provide a Federal Emergency Management Agency flood zone map that includes the subject property. Also, if yes, could the solar panel support posts withstand flood inundation? Would the inverters, panels or wiring be damaged as a result of flood inundation? Would only solar panels be located within the 500-year flood zone, or would equipment pads (e.g. inverters and transformers) be located in such areas also?

Interconnection

27. Would any of the power produced be used on-site (identify use), or would it all be fed into the local distribution system? If any of the power would be used on-site, estimate the total on-site load in kilowatts.

28. Page 15 of the Petition notes that, "All of the interconnections combined will require up to 12 new wooden distribution poles on the Project Site." Approximately how tall would such poles be?

29. Would certain solar arrays (or portions of the project) be electrically independent such that one portion could be shut down for maintenance and repair and the remaining portions could remain active and continue to supply power to the grid? For example, per Sheet C-103, Point of Interconnection A (POI-A) is 10 MW, and POI-B is 5 MW. Is POI-C about 5 MW to reach a total of 20 MW? Where would POI-C be located?

30. Would a System Impact Study from the electric distribution utility (e.g. Wallingford Electric Division) be required for the interconnection process? Does the Petitioner have an Interconnection Agreement and with whom? While the proposed project would connect to distribution, would any ISO-NE study or approval be required?

31. Would any upgrades or modifications to Wallingford Substation be required to accommodate the interconnection?

Public Safety

32. Would the solar facility have a protection system to shut the facility down in the event of a fault within the facility or isolate the facility during abnormal grid disturbances or during other power outage events?

33. Would the proposed project comply with the National Electrical Code, the National Electrical Safety Code and any applicable National Fire Protection Association codes and standards?

34. With regard to fencing:
    a. Page 14 of the Petition notes that, "Equipment areas within the Project Site will be entirely enclosed by a 7-foot tall fence..." Does this include solar arrays or only electrical equipment that would be mounted on concrete pads (e.g. equipment depicted on Sheet C-115)?
    b. On page 14, the Petitioner notes that it is willing to consider a 6-inch gap at the bottom of the fence for wildlife to pass through. Would this be for all fencing? If not, identify those fence sections where the gap would not apply.
    c. Would the fence utilize anti-climb measures?

35. Would glare from the panels present a problem for any nearby properties? Can plantings be used to buffer the visibility of and/or glare from the solar arrays?

36. Would glare from the solar arrays have any impact on air navigation? Has a glare analysis been conducted? If not, under what circumstances would a Federal Aviation Administration (FAA) glare analysis be required?

37. Under Appendix K of the Petition, the Petitioner provided three Determinations of No Hazard from the FAA. How were these three locations selected before filing with the FAA?

38. Would the proximity of any existing or proposed outbuildings, structures, etc. present a fire safety or other hazard (ex. Lightning strike)? Would the proximity of any existing or proposed outbuildings, structures, etc. present a hazard in relation to the electric generating equipment?

39. With regard to emergency response:

    a. Is outreach and/or training necessary for local emergency responders in the event of a fire or other emergency at the site?
    b. How would site access be ensured for emergency responders?
    c. In the event of a brush or electrical fire, how would the Petitioner mitigate potential electric hazards that could be encountered by emergency response personnel?

40. Could the entire facility be shut down and de-energized in the event of a fire? If so, how? Would there be an emergency key box for first responders to access the site for shutdown purposes, or would they use individual disconnect switches to shut the solar plant down?

Environmental

41. Under Appendix A of the Petition, the Carbon Debt Analysis indicates that the proposed project would generate approximately 24,000 MWh of electrical energy per year. Is that AC MWh? Does the Petitioner agree that AC MWh is more appropriate for carbon debt analysis than DC MWh because only AC power can flow into the grid?

42. Under Appendix A of the Petition, based on Table 1 (page 2) of the Carbon Debt Analysis, about how long in days or years of operation before proposed project would pass the carbon dioxide "break even" point and potentially result in a net carbon dioxide reduction for the environment?

43. Did the Petitioner conduct a Shade Study Analysis? Would shading present any challenges for the proposed project? If so, how many acres of trees will be removed to mitigate for shading, or would all of the tree clearing be associated with the project footprint itself and not shading?

44. Page 14 of the Petition notes that, "The largest installation area requiring tree clearing will require approximately 5.2 acres to be cleared; this will be the largest contiguous area cleared at one time." Does the Petitioner expect that a clearing area in excess of five acres would be permissible under the DEEP General Permit requirements?

45. Would any proposed tree clearing occur within 0.25 miles of a known northern long-eared bat (NLEB) hibernaculum or within 150 feet of a known occupied maternity roost tree?

46. Page 14 of the Petition notes that, "Tree clearing on the Project Site will be restricted to be exclusive of the period of May 1 through August 15 in order to avoid impact to any potential summer-roosting tree bats." Would such seasonal restriction be protective of the NLEB? What other, if any, species that may occur at the proposed site is this seasonal restriction intended to protect?

47. Has the Petitioner considered a seasonal restriction (e.g. February 15th through April 15th) on construction or any other mitigation measures to protect the potential vernal pools?

48. Why is a Turtle Protection Plan (TPP) included in the Petition when no turtle species are identified by DEEP in the Natural Diversity Database Review Letters dated April 7, 2017 under Appendix N of the Petition? Which, if any, turtle species may occur at the proposed site that the TPP is intended to protect?

49. Under Tab O of the Petition, page 4 of the Habitat Assessment, the Petitioner notes that, "Targeted listed insect species were not observed in this (Stripped Barren habitat) location during several seasonally appropriate site-days." Does this include all of the insect species identified by DEEP in the letter dated April 7, 2017? Would any of these insect species be likely to occur outside of the identified 0.83 acre Stripped Barren habitat?

50. Page 41 of the Petition notes that, "Prior to the installation of the panels, the stripped barren habitat will be evaluated to confirm that no listed species are present. To the extent that any are identified, they will be removed from the work area and transplanted in a nearby area of suitable habitat characteristics in coordination with NDDB." Does this include both plant and animal/insect species identified in the DEEP Letter dated April 7, 2017?

51. Did the Petitioner seek to minimize wetland crossings when designing the access drives to the solar arrays?

52. Is the project located within a DEEP-designated aquifer protection area? Are there any wells on the site or in the vicinity of the site? If so, how would the petitioner protect the wells and/or water quality from construction impacts.

53. What effect would runoff from the drip edge of each row of solar panels have on the landfill cap or site drainage patterns? Would channelization below the drip edge be expected? If not, why not?

54. Is the landfill equipped with methane vents? If yes, how would the proposed solar panel and associated equipment locations co-exist with the existing venting system?

55. MIRA controls and monitors the leachate plume from the landfill. Where is the plume located? Where are the controls? Are any solar panels or equipment proposed to be placed over the plume? Would post-mounts or ballast mounts be utilized in the vicinity of the plume?

56. Are any impacts to groundwater quality anticipated as a result of solar rack posts to be driven into the ground? If so, how would the Petitioner manage and/or mitigate these impacts?

57. Would glare from the solar panels attract birds (ex. Appear as water) and create a collision hazard?

Construction Questions

58. If applicable, could tree clearing, grubbing, grading, excavation, filling and dewatering, be performed in stages (e.g. five acres at a time)? Why or why not? (Note: Connecticut Department of Energy and Environmental Protection "DEEP" General Permit for the Discharge of Stormwater and Dewatering Wastewasters Associated with Construction Activities states that, "Whenever possible, the site shall be phased to avoid the disturbance of over five acres at a time…")

59. Could construction be phased to achieve site stabilization before moving to the next 5-acre area?

60. Will grading be required? What is the desired slope within the solar array area? If so, is it possible to install the facility with minimal alteration to existing slopes? If not, could existing vegetation be maintained/managed?

61. Estimate the amounts of cut and fill in cubic yards for a) access roads and b) general site grading, if applicable.

62. How would the posts (that support the racking system) be driven into the ground? In the event that ledge is encountered, what methods would be utilized for installation?

63. Would the concrete ballasts be poured on-site or would they be delivered to the site pre-cast? If they would be poured on-site, explain how cement trucks would access the site and where the ballasts would be poured.

64. On page 16 of the Petition, the proposed construction hours and days of the week are provided. Is it possible that Sunday hours might be necessary because of line outage constraints, inclement weather and/or critical path items?

65. Was the Stormwater Pollution Control Plan prepared in accordance with DEEP criteria?

66. Has the petitioner considered provisions to handle stormwater during/following a rain event during construction? Are temporary swales and/or basins proposed? Describe the methods to control stormwater flows, including, but not limited to, phasing, basins, etc.

67. Would the stormwater design be installed in phases to control stormwater flows onto adjacent properties during construction? Explain.

68. What are the impacts of low mow grass on stormwater retention?

69. Would the (non-landfill portion of the site) be hydro-seeded upon completion of construction activities?

Maintenance Questions

70. Would the proposed project impact the daily operations of the Town of Wallingford such as the resident waste drop-off area, the bulky waste transfer station at the eastern side of the landfill, or the composting and mulch center on the north side of the landfill as noted on page 10 of the Petition?

71. Page 10 of the Petition notes that, "Debris from the former occupation, including tires and car parts, paint cans, and old furniture, are scattered in several locations throughout the MIRA Property." To the extent that any of the existing debris is located with the proposed project footprint, would such debris be removed?

72. Under Tab F of the Petition – Operation and Maintenance Plan, p. 1, the Petitioner notes that, "Air filter elements of the Project will be inspected and cleaned or replaced, if required." Are these air filters for the inverters? Explain.

73. Under Tab F of the Petition – Operation and Maintenance Plan, p. 2, the Petitioner notes that snow removal from the solar panels is not proposed. Would snow accumulation on the solar panels affect the output of the facility? Does the projected annual electrical energy output of the facility take into account possible snow cover?

74. Has any analysis been conducted to determine structural limits of snow accumulation on the solar panels and steel support structures, assuming heavy, wet snow and or ice? What accumulation of snow could the structures handle? Would the Petitioner clear snow from the panels when it approached the limit?

75. Would any mowing be required under or around the proposed solar panels/modules, and if so, approximately how often would mowing occur? Would the petitioner adhere to any seasonal restrictions on mowing due to the presence of state and federal protected species?

76. Describe the type and frequency of vegetation management for the site. Include areas inside and outside of the perimeter fence, as well as detention basins and swales if applicable.

77. Page 16 of the Petition notes that, "In that event that panel cleaning is required, it can be accomplished by using a truck with a water tank." Would this maintenance activity have any impacts to water quality?

78. Would grass be planted in the solar array areas? If so, what types? How would the grass/vegetative growth be controlled to keep the solar panels clear? Describe the maintenance of the grass/vegetative surface in the fenced solar field area. Page 15 of the Petition notes that pollinator species would be applied to the ground surface following panel installation. Which species and what areas are the Petitioner considering?