



STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

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VIA ELECTRONIC MAIL

September 13, 2019

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

RE: **PETITION NO. 1378** – Greenskies Renewable Energy, LLC (GRE) petition for a declaratory ruling, pursuant to Connecticut General Statutes §4-176 and §16-50k, for the proposed construction, maintenance and operation of a 5.0-megawatt AC solar photovoltaic electric generating facility on approximately 16.5 acres located generally east of Taugwonk Road and Taugwonk Spur Road and north of Interstate 95 in Stonington, Connecticut and associated electrical interconnection.

Dear Attorney Hoffman:

The Connecticut Siting Council (Council) requests your responses to the enclosed questions no later than September 26, 2019. 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.

Please be advised that the original and 15 copies are required to be submitted to the Council's office on or before the September 26, 2019 deadline.

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/emr

c: Gina L. Wolfman, Senior Project Developer, Greenskies Renewable Energy, LLC

**Petition No. 1378
Interrogatories
Set One
September 13, 2019**

Project Development

1. Does Greenskies Renewable Energy LLC (GRE or Petitioner) have a contract to sell the electricity and/or renewable energy certificates (RECs) it expects to generate with the proposed project? If so, to which public utility? If the electricity is to be sold to more than one public utility, provide the percentage to be sold to each public utility.
2. Page 19 of the Petition states, "Selection of this Project for a PPA under CSCU RFP process affirms the Project's consistency with the state's energy plans and objectives." What authority approves the power purchase agreement (PPA) for the facility? Has a PPA with an electric distribution company been executed? If so, at what alternating current megawatt output? If not, when would the PPA be finalized?
3. What is the length of the PPA? Are there provisions for any extension of time in the PPA? Is there an option to renew?
4. Is the alternating current megawatt capacity of the facility fixed at a certain amount per the PPA and/or the RFP? Is there an option within the PPA to allow for changes in the total output of the facility based on unforeseen circumstances?
5. If the PPA expires and is not renewed and the solar facility has not reached the end of its lifespan, will the Petitioner decommission the facility or seek other revenue mechanisms for the power produced by the facility?
6. Would the petitioner participate in the ISO-NE Forward Capacity Auction? If yes, which auction(s) and capacity commitment period(s)?

Proposed Site

7. What type of development and minimum lot size is permitted per the zoning designation?
8. Have any land use development plans been approved by the municipality for the proposed site in the past?
9. Where is the nearest recreational area from the proposed site? Describe the visibility of the proposed project from this recreational area.
10. Page 18 of the Phase 1A Cultural Resources Assessment Survey (Phase 1A Report) notes that, "Analysis of the aerial photographs, however, indicates that so long as the northern access road construction is built south of the visible stone walls, it will not impact any potential historical resources associated with those outbuildings." Would the northern access road and electrical interconnection corridor be located south of the visible stone wall (at the northern limits of the property)? Explain.

11. By letter dated May 28, 2019, the Petitioner notified the Mohegan Tribe that the Phase 1A Report was completed, and a Phase 1B Report was planned. Additionally, the Mohegan Tribe was invited to a site visit. Did the Petitioner receive any feedback from the Mohegan Tribe?
12. A copy of the Phase 1B Cultural Resources Survey Report (Phase 1B Report) was provided to the State Historic Preservation Office on or about July 2, 2019. Did the Petitioner receive any feedback from SHPO regarding the Phase 1B Report?
13. About how many acres of the subject property are currently used for agricultural purposes? About how many acres would remain in use post-construction?
14. Provide the distance, direction and address of the nearest off-site residence from the solar field perimeter fence.

Energy Production

15. Would all 5 MW AC be dedicated to virtual net metering for the Connecticut State Colleges & Universities?
16. Have electrical loss assumptions been factored in to the output of the facility? What is the output (MW AC) at the point of interconnection?
17. Page 13 of the Petition states that there would be approximately 16,680 solar panels at 390 Watts DC each. Sheet LD has a total of about 16,580 solar panels. Estimate the correct total and indicate if it has changed (since the original Petition filing) as a result of finalizing stormwater design.
18. Explain why a solar panel orientation to the south with its specified angle above the horizontal was selected for this facility. Is the project designed to maximize annual energy production or peak load shaving?
19. What solar panel angle (above the horizontal) was used to determine the proposed MW AC of the facility and proposed MWh (AC) for the facility? Please correct to match the angle if necessary.
20. What is the projected capacity factor (expressed as a percentage) for the proposed project?
21. What is the efficiency of the photovoltaic module technology of the proposed project?
22. Would the power output of the solar panels decline as the panels age? If so, estimate the percent per year.
23. Is the project being designed to accommodate the potential for a future battery storage system? If so, please indicate the anticipated size of the system, where it may be located on the site, and the impact it may have on the PPA.
24. Page 18 of the Petition notes that, "Decommissioning consists of physical removal of all facility components, such as solar arrays, equipment (e.g. batteries, inverters and transformers)..." Are batteries proposed for this project, and what would the batteries be used for?

25. 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? Would any of these expose the solar panels to damage?
26. 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?
27. Could the project be designed to serve as a microgrid?
28. Page 13 notes that, "The proposed Project is comprised of six independently metered systems..." Should one section of the solar array experience electrical problems and the section shuts down, could other sections of the system still operate and transmit power to the grid?

Site Components and Solar Equipment

29. Page 13 of the Petition states that the panels would be installed at a 25 degree angle above the horizontal. Sheet SD-2 Photovoltaic Array has an angle of about 22.4 degrees. Sheet L-1 Site Plan & Array Layout has an angle of 15 degrees. Drawing G200 depicts an angle of 30 degrees. Please clarify which angle is correct and provide corrected drawings as applicable.
30. Provide the following information regarding the Project solar panels:
 - a) Will the panels be mounted in a portrait or landscape fashion?
 - b) What is the minimum and maximum overall height of the panels above grade?
31. Were string inverters considered for this project? If so, what factors led the current design of several large inverters rather than the use of string inverters?
32. What type of solar panel mounts are proposed? What is the design wind speed of the solar panel mount? How are the panels adhered to the mount? What prevents the solar panels from separating from either the racking or the foundation during high winds?
33. How many panels will each rack hold? Provide a specification sheet if the rack system model has been selected, or, if the exact model has not been determined, a sheet for a similar system currently available.
34. Is any wiring for the panels installed on the racking? If such wiring is external, are there any concerns regarding potential damage from weather exposure, vegetation maintenance, or animals?
35. Would any upgrades to the existing access road (such as additional gravel) be necessary to make it suitable for the construction and maintenance of this proposed solar facility?
36. Page 12 of the Petition notes that there would be 12-foot row spacing (for the solar panels). Drawing G-200 depicts a row spacing of 15 feet. Please provide the correct row spacing (i.e. measured from the edge of one solar panel to the edge of the next solar panel on an adjacent row)? If necessary, please revise Drawing G-200.
37. Is any portion of the proposed project located within a 100-year or 500-year flood zone? If yes:
 - a. Indicate which portion(s) of the project area are located within flood zones, and provide a Federal Emergency Management Agency flood zone map that includes the subject property;
 - b. Can the solar panel support posts withstand flood inundation?
 - c. Would the inverters, panels or wiring be damaged as a result of flood inundation?

Interconnection

38. 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.
39. Referencing page 14 of the Petition, the electrical interconnection impact/feasibility studies were completed for Phase 1 of the project. However, feasibility study for Phase 2 is pending. What is the status of such study? Has GRE received confirmation that the electrical distribution system can accommodate the interconnection of all 5 MW AC (for Phases 1 and 2) or only 2.5 MW AC (for Phase 1) at this time?
40. Referencing page 15 of the Petition, it notes, "GRE will install lines below grade and, where necessary, will run overhead lines using a prescribed number of wooden utility poles to reach Taugwonk Road." Drawing G200 depicts an underground 13.2-kV circuit that converts to overhead near Taugwonk Road and includes poles at this end of the line. Sheets LA-1 and LA-2 have an all overhead electrical interconnection. The Decommissioning Plan estimates about 18 utility poles to be removed. When does the Petitioner expect to have more firm/finalized plans for the electrical interconnection and potential wetland/watercourse impacts? Please provide an update on the utility route if available.

Public Safety

41. 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?
42. Would the project comply with any applicable National Fire Protection Association codes and standards?
43. Page 15 of the Petition and page 7 of the Stormwater Report note that the fence would be 7 feet tall. Page 8 of the Stormwater Report indicates an 8-foot fence. Please provide the correct the fence height.
44. Would the proposed project meet the applicable Department of Energy and Environmental Protection noise standards at the property boundaries?
45. Would sun reflection off of the panels create a glare effect on any abutting residences or would such potential glare be shielded by existing vegetation?
46. Where is the nearest airport and/or airfield? 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 FAA glare analysis be required?

47. With regard to emergency response:
- d. Is outreach and/or training necessary for local emergency responders in the event of a fire or other emergency at the site?
 - e. How would site access be ensured for emergency responders?
 - f. 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?
 - g. Could the entire facility be shut down and de-energized in the event of a fire? If so, how?
 - h. Would there be an emergency key box for first responders to access the site for shutdown purposes?

Environmental

48. Page 7 of the Petition notes that the proposed project is comprised of about 16.5 acres. Page 7 of the Stormwater Report notes that the project would be located on approximately 18.2 acres. Page i of the Phase 1A Report states the limits of work would occupy about 21.5 acres. Please provide the correct acreage of the footprint, and indicate if such acreage includes the access roads and overhead electrical interconnection corridor/route?
49. Please provide the following:
- i. Acreage of tree clearing only;
 - j. Acreage of tree clearing and grubbing;
 - k. Acreage of tree clearing in wetlands; and
 - l. What methods would be used to clear trees in wetlands?
50. Would any proposed tree clearing occur within 0.25 miles of a known northern long-eared bat hibernaculum or within 150 feet of a known occupied maternity roost tree?
51. On page two of the comments from the Council on Environmental Quality (CEQ) dated August 29, 2019, CEQ requested confirmation that the proposed Stormwater Management Basin No. 2 (located along the entire western boundary of the proposed site) would not adversely affect flow to wetlands and to the identified vernal pool. Please confirm.
52. What effect would runoff from the drip edge of each row of solar panels have on the site drainage patterns? Would channelization below the drip edge be expected? If not, why not?
53. Referencing Appendix O of the Petition – Site Soils Information, the majority of the site development is located on 43A (Rainbow silt loam) and 45B (Woodbridge fine sandy loam) soils. The depth to the water table is between 18 and 30 inches below the surface. The depths to the restrictive features are 20 to 40 inches for 43A and 20 to 39 inches for 45B. What is the potential impact to the perched water table, intermittent streams and wetlands on this site? Would the installation of the posts for racking systems pierce the densic layer beneath the perched water table? What impact might this have on eliminating the perched water table and future agricultural use given the water table between 18 to 30 inches below the surface? Were any deep test pits conducted? What are the results and the impacts?
54. Referencing the July 20, 2019 Vernal Pool Impact Assessment Memorandum in the Petition, would the proposed project be consistent with the 2015 U.S. Army Corps of Engineers Vernal Pool Best Management Practices?
55. What is the host municipality's setback regulation from wetlands?

56. Referencing Figure 2 of the Wetland Delineation, could the wetlands and vernal pool be depicted in different colors for more contrast and to improve the readability of this figure?
57. Page 14 of the Petition notes that, "Posts are typically driven into the earth to depth of 9 feet below grade." Are any impacts to groundwater quality anticipated? If so, how would the petitioner manage and/or mitigate these impacts?
58. Page 4 of the Phase 1A Report indicates the presence of rainbow soils, which are strongly acidic. Given that the posts would be up to 9 feet below grade, would such potentially acidic conditions accelerate the deterioration of the subsurface portion of the posts and render such posts non-recyclable in the future?

Facility Construction

59. Referencing page 7 of the Stormwater Report, it states, "Proposed stormwater management improvements are designed to prevent and increase in the postdevelopment flows to off-site areas." Is it correct to say that, "...prevent an increase..." was intended?
60. Page 15 of the Petition notes that, "Petitioner will apply to CT DEEP for a Construction Stormwater General Permit, and an on-site pre-application with DEEP stormwater personnel is currently scheduled to take place on August 22, 2019." Did the Petitioner meet with DEEP stormwater personnel on that date or a different date? Please describe any recommendations, comments or concerns about the project provided by the Stormwater Division. If necessary, include an updated drawing with any material changes to the solar footprint, fence, stormwater management basins, etc. as a result of the discussions with DEEP Stormwater Division.
61. What is the status of the submittal of an application for a General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities from DEEP?
62. Regarding the two proposed stormwater management basins, would they have a wet or dry bottom of the basins? Were the elevations for spillways/emergency included? What environmental erosion and sedimentation controls would be in place? Provide the construction details for the basins.
63. With regard to earthwork required to developed the site, provide the following:
 - a) Will the site be graded? If so, in what areas?
 - b) What is the desired slope within the solar array areas?
 - c) Could the solar field areas be installed with minimal alteration to existing slopes?
 - d) If minimal alteration of slopes are proposed, can existing vegetation be maintained to provide ground cover during construction?
 - e) Estimate the amounts of cut and fill in cubic yards for the access road(s)
 - f) Estimate the amounts of cut and fill in cubic yards for solar field grading.
 - g) If there is excess cut, will this material be removed from the site property or deposited on the site property?
64. 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? Will blasting be required to install any site infrastructure? If not, what methods would be used if bedrock is encountered?
65. Has a comprehensive geotechnical study been completed for the site to determine if site conditions support the overall project design? If so, summarize the results. If not, has the Petitioner anticipated and designed the project with assumed subsurface conditions? What are these assumed conditions?

66. Referencing the Schedule under Figure 7, “site control” began in February 2019. Explain what is meant by “site control.”
67. Page 16 of the Petition notes that, “Construction of the Project (Phase 1) is expected to begin in late 2019...Official notice to proceed for construction is anticipated in early 2020.” Page 8 of the Stormwater Report notes that, “Construction is anticipated to commence in February 2020 and will last approximately 3 months for phase one.” However, Figure 7 – Construction Schedule indicates that construction would commence on April 6, 2020 beginning with site preparation. Please clarify the correct projected commencement date for construction of Phase 1 and also Phase 2 if known (based on the latest consultations with Eversource regarding the interconnection).

Maintenance Questions

68. How would the Petitioner remove snow that accumulates on the panels and any effects of blocking the sunlight? Would snow accumulation on the solar panels affect the output of the facility? Under what circumstances would snow be removed? Describe snow removal methods including method of site access.
69. 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? Would there be circumstances that would require snow/ice removal to prevent damage to the panels/rack system?
70. 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?
71. Describe the type and frequency of anticipated vegetation management for the site. Include areas inside and outside of the perimeter fence, as well as detention basins and swales.
72. Would the installed solar panels require regular cleaning or other, similar, maintenance? How would this be accomplished? Would any chemicals be used or only water? Would this maintenance activity have any impacts to water quality?
73. How does the developer intend to promote and maintain grasses or other ground cover beneath the panels and within the solar array rows? Would bare ground areas or patchy growth increase site runoff?
74. Figure 9 and Figure 10 of the Petition include sample solar seed mixes. Is the Petitioner still evaluating what type of seed mix would be used at the site (for the consideration of pollinator friendly species and/or dual-use agriculture) or has the final seed mix been determined?
75. Would the petitioner store any replacement modules on-site in the event solar panels are damaged by hail, prey shells or other impact hazards? If so, where? How would damaged panels be detected?
76. Referencing page 2 of the Operation and Maintenance Plan under Tab E of the Petition, Section 6.4 states, “Catch basin inspection – contact the Town of Royalston, Department of Public Works, as needed, to arrange maintenance and repair of King Street catch basin.” Please correct this statement.