



STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

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VIA ELECTRONIC MAIL

June 28, 2018

Kenneth C. Baldwin, Esq.
Robinson & Cole LLP
280 Trumbull Street
Hartford, CT 06103-3597

RE: **PETITION NO. 1345** – Pawcatuck Solar Center 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 15 MW AC solar photovoltaic electric generating facility on approximately 353 acres comprised of four abutting parcels located east of Pendleton Hill Road, north of the Pawcatuck River and south of Interstate-95 with proposed access from Ella Wheeler Road, and associated electrical interconnection to Eversource Energy's Shunock Substation west of Pendleton Hill Road in North Stonington, Connecticut.

Dear Attorney Baldwin:

The Connecticut Siting Council (Council) requests your responses to the enclosed questions no later than July 19, 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

c: Council Members
Nelson Teague, Pawcatuck Solar Center, LLC
Russ Edwards, Coronal Energy

MB/RM/lm



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Petition No. 1345

Pawcatuck Solar Center LLC

Interrogatories- Set One

June 28, 2018

Project Notice and Development

1. Regarding Petition Tab J, was a copy of the petition served on the Town of North Stonington Conservation Commission? If not, please provide notice.
2. What is the relationship between the Petitioner and the developer? If the project is approved, identify all permits necessary for construction and operation and which entity will hold the permit(s)?
3. What entity/subcontractor will be constructing the facility? Has this entity/subcontractor constructed other solar projects 5 MW or greater in the Northeast? If so, list similar projects.
4. Page 3 of the Petition references Coronal Energy, LLC, under its former names, Coronal Development Services and Heliosage Energy, "successfully secured Siting Council approval for the development of the Fusion Solar Center in Sprague... and Somers Solar Center in Somers." Footnote 2 on Page 3 of the Petition indicates, "The Fusion Solar Center project in Sprague was conveyed to DESRI CT Fusion Acquisition, LLC in 2017, **prior to the commencement of construction** (Emphasis added). The Somers Solar Center project was **conveyed to CleanPath Energy before it was conveyed to Dominion Energy in 2013 who oversaw construction** of the facility (Emphasis added)."
 - a) If the project is approved by the Council, does Coronal Energy, LLC plan to transfer its interests to another entity prior to the commencement or completion of project construction as it had done with the Fusion Solar Center project in Sprague and the Somers Solar Center project in Somers?
 - b) If the answer above is yes, how will compliance with the conditions of the Council's final decision on the petition and compliance with the conditions and regulations of the Council's approval of a Development and Management Plan for the project be achieved?
5. Page 1 of the Petition references that Pawcatuck Solar Center, LLC was a "participant and awardee of the CT DEEP Tri-State RFP," which RFP is also known as the "New England Clean Energy RFP." However, the Pawcatuck solar project is not listed under the "New England Clean Energy RFP Bidders Selected for Contract Negotiation" on the New England Clean Energy RFP website. It is listed under the "DEEP Small-Scale Clean Energy RFP Projects Selected to Move Forward" on the DEEP Small-Scale Clean Energy RFP website:
http://www.ct.gov/deep/lib/deep/press_releases/2016/2016nov28smallscaleenergy.pdf
Please explain.
6. Does the Petitioner have a contract to sell the electricity and 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.

7. What authority approves the power purchase agreement (PPA) for the facility? Has a PPA with United Illuminating and Eversource been executed? If not, when would the PPA be finalized?
8. What is the length of the power purchase agreement? Are there provisions for any extension of time in the PPA? Is there an option to renew?
9. Is the alternating current megawatt capacity of the facility fixed at a certain amount per the PPA and/or the RFP?
10. Would the petitioner participate in the ISO-NE Forward Capacity Auction? If yes, which auction(s) and capacity commitment period?

Proposed Site

11. Is the site parcel, or any portion thereof, part of the Public Act 490 Program? If so, how does the municipal land use code classify the parcel(s)? For example, is/are the parcel(s) classified as "Tillable D – good to fair"? How would the project affect the use classification?
12. Has the State of Connecticut Department of Agriculture purchased any development rights for the project site or any portion of the project site as part of the State Program for the Preservation of Agricultural Land?
13. Is any portion of the site currently in productive agricultural use? If so, approximately how many acres are in production? Is the property farmed by the property owner or is it leased to a third party?
14. Could the project qualify under the Agricultural Virtual Net Metering Program or other renewable energy program?
15. Referring to Petition Exhibit G, p. 22, how many acres within the Limit of Disturbance are mapped as Connecticut Prime Farmland Soils, and of this figure, how many acres are in active agricultural production?
16. What impacts, if any, would the proposed project have on future soil productivity of the site?
17. Referring to Petition p. 16, what modifications suggested by the Department of Agriculture were incorporated into the design of the facility?
18. Have any land use development plans been previously approved by the municipality for the proposed site in the past?
19. Provide the distance, direction and address of the nearest off-site residence from the solar field perimeter fence?
20. Page 3 of Exhibit B, Decommissioning Plan states, "Pawcatuck Solar Center and the landowner of the site have agreed to a decommissioning bond that will be established for the project, thereby guaranteeing its proper and complete removal from the property at the termination of the land contract." Referencing the June 25, 2018 comment letter from the Department of Agriculture, does this agreement include provisions for soil restoration at the site to the satisfaction of the landowner?

Energy Production

21. Identify the loss assumption(s) for the proposed project. For example, would the proposed facility provide 15.0 MW AC at the point of interconnection? Is the 15.0 MW AC rating based on operation under optimal conditions or is it an average of expected daily conditions?
22. What is the projected capacity factor (expressed as a percentage) for the proposed project?
23. 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, 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?
24. Petition p. 14 states that the proposed solar system will keep the electric grid stable. Please explain this statement given the lack of energy production at night, and the dependence of the angle of the sun, the length of the day, and weather conditions for daily energy production.
25. What is the status of the interconnection agreement with Eversource?
26. 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.
27. Could the project be designed to serve as a microgrid?

Site Components and Solar Equipment

28. Provide the following information regarding the Project solar panels:
 - a) What is the anticipated wattage of the panels?
 - b) What is the anticipated size of the panels?
 - c) What is the efficiency of the solar panels?
 - d) Will the panels be mounted in a portrait or landscape fashion?
 - e) What is the minimum and maximum overall height of the panels above grade?
 - f) Provide a specification sheet if the panel model has been selected.
29. Provide the following information regarding the Project single-axis rack/tracking system:
 - a) How many panels will each rack hold?
 - b) How does the tracking system operate mechanically?
 - c) What are the expected minimum and maximum angles during tracking?
 - d) What is the expected power production gain in using a tracking system as opposed to using fixed panels?
 - e) How much power will the tracking system consume, and has that been accounted for in the projected net gain?
 - f) What is the rated design wind speed and structural limits of snow accumulation on the solar panels and the rack/tracking system?
 - g) Can freezing temperatures negatively impact the tracking system?
 - h) Provide a specification sheet if the rack/tracking system model has been selected, or, if the exact model has not been determined, a sheet for a similar system currently available.

30. Referring to the Site Plans in Petition Exhibit C, what is the aisle width between the solar panel rows? With the exception of the spadefoot toad management area, is the aisle row width uniform throughout the Project area?
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. Petition Exhibit G, p. 1, states that the proposed project will incorporate six utility scale inverters and transformers. Provide the specification sheets if the inverters and transformers have been selected.
33. Petition Exhibit G p. 1 states that the proposed project would have six utility scale inverters and transformers on pads whereas Exhibit C- Drawing EXC-C shows seven pads. What how many pads will be installed? List the equipment located on each pad.
34. Has the route of underground electrical conduit connecting the arrays to the pads and pads to the interconnection point been determined? If so, provide a drawing.
35. Petition Exhibit C Erosion and Control Plans (100 and 700 series) under key notes no. 1 reference Electrical and Structural Plans. Provide such plans.
36. At what point will the underground electrical connection transition to an overhead progression to the 13.8 kV distribution system? What type of equipment and utility pole is required for this transition? Would an underground route to Eversource's electric distribution system be more reliable?
37. Referring to Petition Exhibit B, p. 3, what structures require reinforced concrete?

Public Safety

38. 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?
39. If there was an operational issue in one section of the solar field, can this section be disconnected at the inverter location so that the remaining sections can still produce power?
40. Would the project comply with the National Electrical Code, the National Electrical Safety Code and any applicable National Fire Protection Association codes and standards?
41. 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?
42. Petition p. 18 describes "biodegradable oil for cooling." What is the "biodegradable oil? Please provide a Material Safety Data Sheet for this oil. How much oil will be used in oil-filled equipment?
43. Are there any existing or proposed outbuildings, structures, etc. that could present a hazard to the solar facility equipment or interconnection route?

44. 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?
 - d. How would the entire facility be shut down and de-energized in the event of a fire?

Environmental

45. Provide the carbon debt payback period in years (or days) using the formula below with U.S. EPA data.

$$\text{Carbon Debt Payback in Years} = \frac{(\text{Acres of trees to be cleared})(0.85 \text{ MT CO}_2 \text{ per acre-year})(\text{Service life of facility in years})}{(\text{Annual Energy Production in kWh})(7.44 \times 10^{-4} \text{ MT CO}_2 \text{ per kWh-year})}$$

46. Referencing Petition p. 21 and footnote 5, please provide a copy of the results from the U.S. EPA Greenhouse Gas Equivalencies Calculator.
47. Referring to Petition p. 17, a reference is made to "ACS". What entity is "ACS"?
48. Would glare from the solar panels attract birds (ex. appear as water) and create a collision hazard? Are there any studies in the northeast regarding glare and avian mortality for ground mounted solar arrays in the northeast?
49. Petition p. 9 lists 98 acres of trees to be cleared. Is this value for trees within the Limit of Clearing (LOC) or Limit of Disturbance (LOD)?
50. Does the 144 acre Project area represent the LOD or LOC?
51. Site Plan C-101 Legend shows an assumed 25-foot wetland setback. Why was this setback distance selected in developing the Project? What is the Town's wetland setback?
52. How would tree clearing in wetlands be accomplished? What type of machinery would be used to cut the trees and to remove the logs/canopy? What would be the remaining stump height above grade for trees cut within wetlands? Were taller snag "stumps" contemplated to enhance wildlife value?
53. How many acres of forest in Wetland 1, Wetland 2 and Wetland 5 would be cleared for the Project? Do these mature forested wetlands provide critical habitat for on-site species? Are forested wetlands important breeding areas and migratory pathways for birds? How would the clearing of the mature forested wetlands affect on-site wildlife use?
54. Referring to Petition p. 30: If utility poles are installed within wetlands, would the poles be treated with any chemicals to prevent decay? If so, what kind of chemicals and could such chemicals leach into the underlying wetland?

55. Referring to Petition Exhibit G, REMA Vernal Pool Investigation Report:

- a) Page 1 indicates the amphibian breeding pool “encompasses 277 acres.” Please explain.
- b) Page 7 indicates that no construction activities should take place within the CTH during the immigrating period for spotted salamanders between March 15th and April 30th... In the next paragraph, it states that no mowing should take place within the CTH during the peak immigrating and emigrating movements of amphibians to and from the breeding pool: March 15th to April 30th and July 1st to September 15th. Why is there no July 1st to September 15th restriction during the construction phase?
- c) Given recent warmer spring temperatures and the site’s geographical location along the coast, is March 15th too late in the breeding season for a protective seasonal restriction?
- d) Page 34, Figure 6 indicates 37 percent of the CTH remains as agricultural field- will this be active agricultural field or will these areas be allowed to revert to old field?
- e) Is the discussion of habitat use beyond the 750 foot CTH by adult salamanders supported by any field data?
- f) Is there insufficient forested area within the 750 foot CTH area to support the population breeding in the pool?
- g) Would the best conservation strategy for this vernal pool be to not only restore the vernal pool envelope but also to restore some additional forested areas within the CTH?
- h) Why was a decision made to restore the vernal pool envelope using only seed mixes? Was consideration given to replanting the envelope areas to be restored with native shrubs and trees? Was consideration given to restoring duff layers in the restored areas and imbedding cover objects? Wouldn’t restoration of forest and shrub cover, and restoration of the duff layer increase the utility and productivity (for amphibians) of the vernal pool envelope?
- i) How much of the forested strips and patches located within 750 feet of the vernal pool will be lost due to the proposed development? How much will be reforested? Express this in both acreage and percentages.
- j) Page 6 states the forested areas within the CTH would be left intact. Are portions of the forested CTH within the “Shade Zone” and if so, would they be managed only as shrubland and not as upland forest? Does managed shrubland provide the same habitat values for vernal pool species as forest land?
- k) Would de-compaction of the old farm road adjacent to the south edge of the vernal pool enhance the CTH?
- l) Referring to Petition Exhibit G, p. 6 refers to a “classic vernal pool” whereas p. 15 refers to a “cryptic vernal pool”. Please clarify.

56. Referring to Petition Exhibit G, p. 12 of the Environmental Assessment, under the heading, “Spadefoot Toad,” the fourth sentence of the second paragraph states, “Interestingly, the spadefoot breeding pool is not a wetland, as an examination of the pool basin revealed that the soils present are moderately-well drained, and therefore **do meet** the wetland soil criteria based on state statute” (Emphasis added). Should the sentence state, “and therefore **do not meet** the wetland soil criteria based on state statute”?

57. Referring to Petition Exhibit G, Appendix C -Spadefoot Toad Study, please provide the following information:
- a) Figure 7: How much of the forest within the polygon area will be removed and/or altered by the Project?
 - b) Were any efforts made to conduct nocturnal eyeshine studies on the large tracts of forest that will be cleared as part of this project?
 - c) Is this population isolated or are there other populations in the area where interbreeding can occur? Do individuals traverse forests to find new breeding areas or is movement strictly across open areas?
 - d) Is it possible that other populations of spadefoot toad exist on the site that could be impacted by the proposed project? Has sufficient survey effort been expended on the entire site to conclude that the only area on the subject property where spadefoot toads occur is in the northern field?
 - e) Page 7: Where were the other two potential breeding pools located? Would restoration of one or both of these pools benefit the future viability of this population?
 - f) Page 6 mentions detention basins as providing suitable habitat for spadefoot toads. Would there be a benefit in altering one or more of the proposed detention basins for use as potential habitat?
 - g) Is there a special seed mix specific to the solar array within the spadefoot toad management area?
 - h) How will vegetation within the solar array and the "no build zone" areas of spadefoot toad management area be maintained once the project is operational?
 - i) What is the aisle spacing of the solar arrays within the spadefoot toad management area? How was this width determined? What studies show that wide aisle spacing is beneficial to toad populations? If the arrays in this area were moved to the east with standard aisle spacing, couldn't more un-altered vegetation closer to the identified population be retained and thus benefit the population?
 - j) How will the spadefoot toad be protected during the decommissioning process?
 - k) Please provide Mr. Quinn's curriculum vitae.
58. Is the site within the range of the Northern-long eared bat? If so, 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?
59. Is the Project site within the New England Cottontail Focus Area? If so, has the Petitioner consulted with DEEP regarding potential Project development impacts to populations and habitat for this species?
60. Referring to Petition p. 23, would the Petitioner comply with any DEEP recommended seasonal construction restrictions and/or mitigation plans related to State-listed species?
61. Referring to Petition Exhibit G, on page 12 of the Environmental Assessment, there is reference to a July 17, 2016 letter received from Dawn McKay at DEEP. Please provide a copy of the letter.
62. Referring to the June 25, 2018 DEEP comment letter on page 3, please provide a copy of the April 2017 DEEP NDDB preliminary assessment letter that requested site surveys for the listed species and protection strategies for the species identified as present or potentially present.

63. Please provide a copy of any requests for an updated DEEP NDDB assessment, as well as the results of survey work and protection strategies referenced on page 4 of the June 25, 2018 DEEP comment letter.
64. What is the status of the consultation with the DEEP NDDB?
65. Referring to Petition Exhibit A, Tree Shading Map, how was the "annual shade path" calculated/determined? What would be the managed tree/vegetation canopy height within the Shade Management Zones?
66. What is the length of the posts and to what depth would the posts be driven into the ground to provide structural stability? What type of posts are being used (e.g. steel, galvanized)? Are any impacts to groundwater quality anticipated from factory coatings on the posts?
67. Referencing the June 25, 2018 DEEP comments on page 4, how would development of the solar project impact and/or address:
 - a) the potential designation of the Wood-Pawcatuck River system as a Wild and Scenic River;
 - b) the EPA Sole Source Aquifer Designation of the watershed; and
 - c) chronic flooding problems at locations along the Pawcatuck River.
68. Referencing the June 25, 2018 DEEP comments on page 2, for the crossing of Wetland 1, at what point would the road cross the wetland? If the crossing is in the area of concern in the comments, could the road crossing be moved to the north or south? Provide a drawing detail for the crossing area.

Facility Construction

69. How does the Petitioner anticipate construction phasing? Given the large size of the LOD, different types of terrain cover, separate solar array areas, and localized detention basins and sediment traps, would the solar field areas be constructed in distinct sections? Please be as specific as possible with regard to site phasing and work tasks in each phase. Does proposed phasing account for possible seasonal construction restrictions due to the presence of protected species?
70. Petition Exhibit G p. 29, Section 3.5, states that, "A gravel staging and parking area is planned along the north side of the access drive at the northwestern end of the Site." Will this location also be used as a clean out site for cement trucks following the foundation pours for the inverters and transformers? Is the gravel staging area a permanent feature?
71. Petition p. 16 states initial engineering efforts focused on stormwater and erosion control design. Are these features contained within the "Stormwater Engineering Concept Report"? Has the project been designed to properly contain runoff during construction from high intensity, short duration storms? If so, would these measures require controls sized differently than those specified in the concept report? Please describe these measures.
72. Sheet 801 of the Stormwater Engineering Concept Report, shows post-construction vegetative cover types 59 and 72. Why are two different codes used for vegetation within the solar field areas?
73. What is the final vegetative cover with in solar field area? Is the selected vegetation a fast growing or slow growing? How would the final cover be applied, standard seeding or through hydro-seeding?

74. What effect would runoff from the solar panel drip edge have on site drainage patterns? Would channelization below the drip edge be expected?
75. Petition Exhibit C Erosion and Control Plans (700 series) shows numerous swales directing runoff to basins and sediment traps. What is the minimum and maximum allowed slope for the swales?
76. Petition Exhibit C - Erosion and Control Plans (700 series) show a reference to "Trees to be cleared and stabilized immediately" with differing corresponding detail notes. Is there a specific reference note detail for tree clearing? If so, provide.
77. Petition Exhibit C - Sheet 701 depicts fiber rolls along the hillside that terminate at proposed solar array access ways. What is preventing stormwater from flowing downslope along the fiber rolls then directly down each access way? Assuming the access ways would be rutted by vehicles, could this cause direct, high velocity channelization?
78. Petition Exhibit C Sheet C-002 SWPPP Note 6 states all bare soil not worked on within 14 days will be seeded or mulched. Are seeded grasses effective in providing temporary soil stability and infiltration if these stabilized areas will be subsequently impacted by vehicles and construction equipment?
79. If site clearing and construction work is conducted during winter months, what additional erosion and sedimentation controls would be deployed to control potential accelerated runoff due to frozen or partially frozen ground?
80. Petition p. 17 states earth work is necessary for equipment tolerances. What tolerances are necessary? What is the desired slope within the solar array area?
81. Estimate the amounts of cut and fill in cubic yards for a) access roads and b) general site grading, if applicable.
82. What is the average depth to groundwater within the Project area?
83. Are there any known off-site private water wells near the LOD? If so, how would the petitioner protect the wells and/or water quality from construction impacts or vibrations?
84. Petition Exhibit G, Appendix E Wetland and Vernal Pool Protection Plan Section 6 mentions "any incidents of sediment release into the wetland resource areas shall will be reported within 24 hours to the Town of Branford Inland Wetlands Director." Please clarify. The text states daily inspection reports will be prepared by the Environmental Monitor. Is the Environmental Monitor on-site daily to report on compliance issues? If not, what individual will be responsible for examining both the erosion and sediment controls and species protection measures on a daily basis? Would this individual be recording written observations using a daily report form?
85. Petition Exhibit G, Appendix E Wetland and Vernal Pool Protection Plan Section 5 mentions the possible use of pesticides and herbicides at the site. When and where would these substances be used?
86. What is the status of the stormwater design? Could the project footprint be reconfigured to avoid siting the solar array on steeply sloped areas, particularly in the northeastern portion of the site?

87. Does the project construction schedule account for:
- a) seasonal wildlife restrictions;
 - b) site stabilization;
 - c) phased implementation of stormwater controls; and
 - d) weather delays?

Maintenance Questions

88. Petition p. 18 mentions an Operations and Maintenance (O&M) Plan. Has a preliminary O&M Plan been prepared? If so, please submit.
89. 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 due to the presence of any protected species?
90. 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.
91. Referencing Page 28 of Exhibit G, indicate the location, type, and purpose of the proposed landscaping. What nearby visual receptor would be able to view the Project?
92. What type of annual maintenance is required for the rack/tracking system? Are the solar array access aisles of a sufficient width to facilitate required maintenance activities?
93. Would the installed solar panels require regular cleaning to remove dust, dirt, bird droppings etc.? How would this be accomplished? Would any chemicals be used or only water? Would this maintenance activity have any impact to adjacent wetlands, watercourses or groundwater?
94. Would the petitioner store any replacement modules on-site in the event solar panels are damaged by hail, prey shells or other impact hazards? How would damaged panels be detected?