



# STATE OF CONNECTICUT

## CONNECTICUT SITING COUNCIL

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### VIA ELECTRONIC MAIL

November 21, 2018

Bruce L. McDermott, Esq.  
Murtha Cullina LLP  
265 Church Street  
New Haven, CT 06510

RE: **PETITION NO. 1354** – Chatfield Solar Fund, 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 1.98-megawatt AC solar photovoltaic electric generating facility on approximately 25 acres located generally south of Route 80 (North Branford Road) and east of Chestnut Hill Road in Killingworth, Connecticut, and associated electrical interconnection to Eversource Energy's Green Hill Substation located at 775 Green Hill Road, Madison, Connecticut.

Dear Attorney McDermott:

The Connecticut Siting Council (Council) requests your responses to the enclosed questions no later than December 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  
Charles Geppi, Chatfield Solar Fund, LLC

MB/RM/lm

**Petition No. 1354**  
**Interrogatories - Set One**  
**November 21, 2018**

**Project Notice**

1. The Town of Madison is within 2,500 feet of the proposed solar field site and the interconnection is to a substation located in Madison. Was a copy of the petition served on the Town of Madison? If not, provide notice.
2. Referring to the Petition Affidavit of Service, it appears the appropriate state legislators were not notified. Please provide notice and submit a copy of the notice.

**Project Development**

3. If the project is approved, identify all permits necessary for construction and operation and which entity will hold the permit(s)?
4. 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.
5. Was the project selected through a DEEP RFP process? If so, which RFP? What entity submitted the proposal? When was the project submitted? When was the project selected?
6. Was the project selected for the LREC/ZREC Program?
7. 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.
8. 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?
9. 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?
10. 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?
11. 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?
12. Would the petitioner participate in the ISO-NE Forward Capacity Auction? If yes, which auction(s) and capacity commitment period(s)?

### **Proposed Site**

13. What type of development and minimum lot size is permitted per the zoning designation?
14. In the lease agreement with the property owner, are there any provisions related to site restoration at the end of the project's useful life? If so, please provide any such provisions.
15. 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? For example, is the parcel classified as "Tillable D – good to fair"? How would the project affect the use classification?
16. 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?
17. Petition page 12 states the nearest neighbor is approximately 200 feet from the solar array. In what direction is the nearest neighbor? Does the referenced 200 feet represent the distance to the nearest property line or to the nearest residential structure? Please provide an address of the referenced neighbor.
18. Provide the direction/distance on a scaled map from the solar field perimeter fence to the nearest property line and to the nearest residential structure.
19. Petition page 12 states a vegetative barrier would exist between the solar arrays and the surrounding area. During leaf-off conditions, would the Project be visible from abutting properties, residences, or Route 80?
20. Petition p. 12 states an abutting residence is 200 feet away and that a 20 foot wide vegetative buffer would be maintained between the abutting residence and the facility. Is the 20-foot buffer on the site property or is it partially or entirely located on the abutting property?
21. Does the proposed site contain any mapped Connecticut Prime Farmland Soils? If so, provide the acreage of prime farmland soils within the solar field areas.
22. What is the operational life of the facility? Provide a decommissioning plan to summarize the plans to remove equipment and restore the site after the operational life has been reached and/or the project is removed from service.

### **Energy Production**

23. Have electrical loss assumptions been factored in to the output of the facility? What is the output (MW AC) at the point of interconnection?
24. Was a tilt angle of 20 degrees selected solely to reduce inter-row spacing? How would the reduction in slope from 20 degrees to 25 degree affect facility power output?
25. Is the project designed to maximize annual energy production or peak load shaving during the summer months?
26. What is the projected capacity factor (expressed as a percentage) for the proposed project?

27. Referring to Petition p. 6, what is the efficiency of the solar panels? Would the power output of the solar panels decline as they age? If so, estimate the percent of loss per year.
28. 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 anticipated installation date.
29. 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 project's capacity factor?
30. Could the project be designed to serve as a microgrid?
31. If one section of the solar array experiences an operational issue and needs to be shut down for maintenance, can other sections of the facility still operate and provide power to the interconnection point?

### **Site Components and Solar Equipment**

32. Provide specifications sheets for the following:
  - a) string inverters
  - b) solar photovoltaic panels
  - c) solar panel racking system(if the exact model has not been determined, provide a spec sheet for a typical model)
33. What is the minimum and maximum overall height of the panels above grade?
34. What is the aisle width between the solar panel rows (edge to edge)?
35. 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 the foundation/racking system during high winds?
36. What is the maximum grade for the safe installation/operation of the solar panel post/racking system?
37. Petition Environmental Assessment, p. 3-1 states the Project area contains moderate slopes. Petition Site Plan Sheet 2 states steep slopes are present in the construction area. Please clarify. What is the steepest slope within the eastern portion of the construction area? Would grading be required to create slopes conducive to the installation of the solar racking system? If so, identify areas of grading.
38. What is the length of the solar racking posts? What is the installation depth below grade to provide the specified structural support for the solar racking system?
39. Are residential areas abutting the proposed site served by private wells? Can vibrations caused by the installation of the driven posts cause sediment buildup or other negative effects on nearby wells?
40. Referring to Petition p. 6, is the wiring to the string inverters installed on or contained within the racking system? If wiring is external, are there any concerns regarding potential damage from weather exposure, vegetation maintenance, or animals?
41. Referring to Petition p. 6, provide a description of the route/type of installation of the electrical conduit connecting the string inverters from each project solar field section to the equipment pad.

42. Petition p. 8 states *The new transformer, service conductors, and metering have been installed by Eversource for the interconnection.* Where is the location of this equipment? Depict the location on a site plan.
43. Please re-submit the Site Plan Sheets (Plans 1A, 1 B, 1C) on a larger paper size (11 x 17) as the copies contained within the Environmental Assessment are too small to be legible.

### **Public Safety**

44. Would the solar facility have an automatic protection system that shuts the facility down in the event of a fault within the facility? Is there a protection system that can isolate the facility from grid operation if there is an abnormal grid disturbance or a power outage event?
45. Would the project comply with the National Electrical Code, the National Electrical Safety Code and any applicable National Fire Protection Association codes and standards?
46. Would sun reflection off of the panels create a glare effect at any abutting residence? What measures can be employed to reduce potential glare (ex. Solid fencing, landscaping)?
47. Where is the nearest airport and/or airfield? Would glare from the solar arrays have any impact on air navigation? Is an aviation glare analysis required by the Federal Aviation Administration for this facility?
48. 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?
49. Provide the following information regarding Project Emergency Response.
  - a) Would the Petitioner conduct any outreach and/or training to local emergency responders regarding site design and safety?
  - b) How would site access be ensured for emergency responders?
  - c) Is the project layout designed so that the various solar field areas are accessible to emergency response vehicles?
  - d) 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?
  - e) Can the entire facility be shut down and de-energized in the event of a fire or other emergency requiring such action? If so, how?

### **Environmental**

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. Referring to Petition p. 5, how were the limits of tree clearing to prevent shading of the solar arrays determined?
52. If the solar array faces south, why is tree clearing necessary in the northeast corner of the site?

53. Petition pp. 10-11 states new low-growth plantings would be considered. What types of plantings are referred to?
54. Referring to the Environmental Assessment p. 3-4, why was a request for a Natural Diversity Database review sent to the Department of Energy and Environmental Protection (DEEP) Water Supply instead of to the Bureau of Natural Resources, Wildlife Division? When was this request made? Has DEEP responded to the review request? If so, submit related documentation.
55. Referring to the Petition Environmental Assessment, Appendix A Wetland Assessment, provide the following:
- a) Figure 2 does not appear to show the whole site, please revise.
  - b) The legend for Figure 3 is partially shown, please provide the entire legend.
  - c) Revise Figure 3 to include designated Wetland Numbers.
  - d) If possible, identify the locations of the photos 1 through 14 on Figure 3.
  - e) Page 13 mentions temporary wetland matting. Provide a detail of the temporary matting system to be used.
  - f) Page 14 mentions general impact to vernal pool envelope (VPE) and the critical terrestrial habitats (CTH) for the on-site 3 vernal pools. Calculate the impact to the VPE and CTH for each vernal pool.
56. Petition Environmental Assessment Appendix A Wetland Assessment p. 14 states if the vernal pools are not Tier 1 pools, then the facility would have minimal impact. If the vernal pools are Tier 1 pools, what mitigation would be required to minimize impacts to vernal pool obligate species?
57. Section 4.0 of the Wetland Assessment did not include the two isolated wetlands described on p. 6. How would the clearing of these wetlands affect their habitat value and function?
58. Referring to Petition p. 20, identify the "selected location" mentioned in paragraph 2.
59. What effect would runoff from the solar panel drip edge have on site drainage patterns? Would channelization below the drip edge be expected in areas that slope sharply east? What would disperse the water in these areas to mimic overland flow instead of channelized flow?
60. Petition Environmental Assessment p. 3-2 states there is also the potential that *thermal* impacts to the eastern semi-perennial stream would be realized, potentially effecting aquatic habitat downstream, and off-site.
- a) What are the thermal impacts attributed to?
  - b) What is the anticipated thermal impact on this stream?
  - c) What species would be affected downstream and off-site?
  - d) How can the potential thermal impact be mitigated?
61. The Petition Environmental Assessment p. 3-2 states the project would create upland herbaceous/shrub habitats. What type of vegetation is proposed within the solar field areas? Is this ground cover considered herbaceous habitat?
62. Does the Town of Killingworth have a Wetland setback regulation or buffer area? If so, provide the setback/buffer distance.
63. Can the site perimeter fencing be designed to provide a wildlife gap along the bottom edge?

### Facility Construction

64. Would the Petitioner apply for a highway encroachment permit from Connecticut Department of Transportation, as applicable, for any work performed within a state highway right-of-way?
65. Does the Petitioner intend to submit an application for a General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities to DEEP? If so, at what time? If not, why not?
66. Has the petitioner met with the DEEP Stormwater Division to discuss the Project? If yes, when? Please describe any recommendations, comments or concerns about the project provided by the DEEP Stormwater Division.
67. Is there a conceptual stormwater pollution control plan for the project? If so, please provide. If not, what areas of the site have been set aside for temporary and permanent stormwater control features, such as swales and detention basins, that may be required as part of the DEEP General Permit?
68. Petition Environmental Assessment p. 3-5 states ground cover change from forested to grassed areas under the panels will increase the peak discharge. What calculations have been performed to support this statement? Were the calculations performed in accordance with DEEP general Permit criteria?
69. Petition Environmental Assessment p. 3-5 states best management practices will be installed to promote groundwater recharge through infiltration. What would be included in such practices, and where would they be installed?
70. Petition p. 21 states the conversion of forest to grass will increase the peak discharge and the planting of grass will mitigate such an increase. How can the grass function as peak flow mitigation if it is the cause of the increase of the peak flow?
71. Referring to the Petition Environmental Assessment, Appendix A Wetland Assessment p. 13, why was a 25-year storm event used in the calculation to design the wetland crossing?
72. What types of construction vehicles would be used at the site?
73. Would temporary or permanent internal access roads be installed for construction or post-construction use? If so, include access roads with dimensions on the Site Plans. If not, how will construction vehicles access the various work areas? Show proposed construction access routes. Once construction is complete and the site operational, how will maintenance vehicles access the various solar field areas?
74. Petition Site Plan Sheet 1A shows an access point to the solar field from Route 80. Will this be the main construction and operational access? Are there any other solar field access points? If so please specify.
75. 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?
76. Will blasting be required to install any site infrastructure, including fence and solar racking posts? If not, what methods would be used if bedrock is encountered?

77. Referring to Petition Site Plan Sheets, conduit wetland crossings, provide the following:
- Describe the equipment necessary to install the conduit crossings.
  - What is the expected wetland impact during construction of both conduit crossings?
  - Is tree/vegetation clearing necessary to install the conduit crossings? If so, include on the Site Plan. How would clearing be accomplished?
  - Provide detail as to how the electrical cable extends from underground to the above ground.
  - Is the design of the conduit crossing susceptible to damage from fallen trees?
  - What crossing height above both wetlands is necessary to avoid potential inundation of the conduits?
78. Referring to Petition Environmental Assessment p. 3-1, provide the following:
- Identify the type of fill that would be used to restore areas disturbed by stump removal.
  - Estimate the amounts of cut and fill for site construction.
  - Grubbing is estimated to be less than 10 percent of the site - Estimate the acreage of grubbing.
  - Does the racking system allow for the adjustment of posts based on field conditions? Would post adjustments affect the structural stability of the system? Indicate the range of tolerance for post adjustment.
  - Would stumps that remain in the solar field eventually decay, creating a pitted and uneven surface that would affect the stability of the solar racking system or cause future maintenance issues?
79. Within the solar field areas, would the forest understory also be flush cut? If so, would all cut understory be removed? Would all existing forest floor detritus and plants (leaves, branches, ferns, etc.) be removed? If so, describe method of removal. Where would this material be deposited?
80. Referring to the Petition Environmental Assessment p. 3-5, is grass proposed for the solar field areas? If so, provide a site diagram that shows areas of grass installation and areas that would be left in a shrub state. How would stump regrowth be managed if grass is planted among flush cut trees?
81. Referring to Petition Site Plan Sheet 1B, provide the following:
- Describe the equipment necessary to install the perimeter fence within the wetland area.
  - Would tree/vegetation be removed? Provide detail on the site plan.
  - What is the estimate of temporary and permanent wetland impacts? Depict wetland impact on the site plan.
  - Would the lower edge of the fence accumulate debris, causing water backup during high rain events?
82. What is the estimated construction schedule for the proposed project, from groundbreaking to full operation? (Petition Site Plan Sheet 2 note states begin Winter 2019 and finish Spring 2019)
83. Petition Site Plan Sheet 2 - Details and Notes, includes a construction sequence with numerous steps. What time of the year would each step occur?
84. Provide typical Project construction hours and days of the week (e.g. Monday through Friday 8 AM to 5 PM)?



### Maintenance Questions

85. Would snow accumulation on the solar panels affect the output of the facility? If so, does the Petitioner intend to remove snow from the solar arrays? Describe snow removal procedures including access to the solar arrays.
86. 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. Would the petitioner adhere to any seasonal restrictions on mowing due to the presence of state and federal protected species, if applicable?
87. 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 runoff and sedimentation to off-site areas?
88. Would the installed solar panels require regular cleaning to remove dust, dirt, bird droppings etc.? If so, describe cleaning procedures including substances used. Would cleaning activities have any impact to adjacent wetlands, watercourses or groundwater?
89. 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?
90. Would pesticides or herbicides be used at the site? If so, specify anticipated products and use.