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August 28, 2017

VIA ELECTRONIC MAIL AND U.S. MAIL

Melanie Bachman
Acting Executive Director
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

Re: Petition of DWW Solar II, LLC for a Declaratory Ruling that no Certificate of Environmental Compatibility and Public Need is Required for a 26.4 Megawatt AC Solar Photovoltaic Electric Generating Facility In Simsbury, Connecticut

Dear Ms. Bachman:

My client, DWW Solar II, LLC, hereby submits an original and 15 copies of its interrogatory responses in connection with the above-referenced Petition.

If you have any questions concerning this submittal, please contact the undersigned at your convenience. I certify that copies of this submittal have been made to all parties on the service list connected to this Petition.

Sincerely,



Lee D. Hoffman

Enclosures

cc: Service List for Petition 1313

**STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL**

**Petition of DWW Solar II, LLC for a
Declaratory Ruling that no Certificate of
Environmental Compatibility and Public
Need is Required for a 26.4 Megawatt AC
Solar Photovoltaic Electric Generating Facility
In Simsbury, Connecticut**

Petition No. 1313

August 28, 2017

**DWW SOLAR II, LLC'S RESPONSE TO THE CONNECTICUT SITING COUNCIL'S FIRST
SET OF INTERROGATORIES**

The petitioner, DWW Solar II, LLC (“DWW”) respectfully submits this response to the Connecticut Siting Council’s First Set of Interrogatories in the above-referenced Petition. In response to the Siting Council’s Interrogatories, DWW states as follows:

Q1: When was the petitioner’s proposed project submitted as a proposal for the Tri-State Clean Energy RFP? When was the proposed project selected?

A1: The proposal was submitted on January 28, 2016 in response to the Request for Proposals from Private Developers for Clean Energy and Transmission issued by Specified State Agencies and Electric Distribution Companies in Connecticut, Massachusetts and Rhode Island. DWW was notified on October 24, 2016 that utilities in Massachusetts and Rhode Island had selected the project to proceed to the negotiation stage of the process. Only the four utilities in Massachusetts elected to execute a power purchase agreement (PPA).

Q2: Was the petitioner’s Power Purchase Agreement (PPA) approved by PURA? When? Are there provisions for any extension of time in the PPA?

A2: The PPAs resulting from the negotiations will not be approved by PURA because the Connecticut Selection Team did not select the project. The PPAs do not provide for extensions of time per se, however, performance can be tolled for events such as force majeure.

Q3: What is the length of the PPA? Is there an option to renew?

A3: The PPAs each have a 20 year services term which commences on the Commercial Operations Date. There is no provision for a renewal or extension of the term.

Q4: Has the State of Connecticut Department of Agriculture purchased any development rights for the proposed site as part of the State Program for the Preservation of Agricultural Land?

A4: Based on a review of the relevant land records, DWW can find no evidence that the Department of Agriculture has purchased any development rights for the proposed site. Should the Department of Agriculture formally become a party to this proceeding, DWW submits that such

question could be submitted to the Department of Agriculture directly, since that agency will be in a better position to answer the question.

Q5: Are any portions of the project site enrolled within the State of Connecticut Department of Agriculture's Public Act 490 Program? If so, how does the town land use code classify the parcel(s)? Would portions of the parcel(s) outside of the Project limits remain in the Program?

A5: DWW refers the Siting Council to its Answer #4 above. In addition, based on a review of the relevant land records, DWW can find no evidence that any portion of the site is enrolled in the Department of Agriculture's Public Act 490 Program. No portions of the parcels being acquired for the project are outside the Project limits.

Q6: Referring to petition Exhibit I, p. 2, what areas are currently in productive agricultural use? How many acres and is it used by the property owner or is it leased to a third party? Could the project qualify under the Agricultural Virtual Net Metering Program or other agriculturally-friendly renewable energy program?

A6: The active farm fields at the project site are delineated on the Farmland Figure in Exhibit B of the Petition. The acreage of agricultural fields is 131 acres. The property owner does not use any area on the site for agricultural use. Rather, the current owner leases the fields to 3rd party farmer(s), who utilize the site for agricultural purposes. While the property might theoretically be able to qualify under the state's Agricultural Virtual Net Metering Program, given the current state of that program's queue and the PPAs that are in place for the project, the project will not seek to enter the Agricultural Virtual Net Metering Program at this time.

Q7: Does the proposed site contain any Connecticut Prime Farmland and/or Important Agricultural Soils? If so, what acreage of prime and important soils would the solar panels and associated equipment be located on?

A7: Yes, the proposed site contains areas of Prime Farmland and Farmland of Statewide Importance. Prime Farmland is depicted on Farmland Soils figure in Exhibit B. According to the latest NRCS mapping, there are 64.7 acres of Prime Farmland in active agricultural use, and 25.2 acres of Prime Farmland located in wooded areas. There are also 65.1 acres of Farmland of Statewide Importance being actively farmed and 58.5 acres located in wooded areas.

The proposed solar panels and associated equipment will be located on 55.0 acres of Prime Farmland and on 52.7 acres Farmland of Statewide Importance.

Q8: For land disturbance, please provide the following:

- a) Acres of tree clearing requiring stumping/grubbing;**
- b) Acres of tree clearing without stumping/grubbing;**
- c) Square feet of disturbance for pole/post installation for solar racking and fencing in prime farmland soil, important agricultural soils, and non-prime farmland soils;**
- d) Acres of disturbance for site grading in prime farmland soil, important agricultural soils, and non-prime farmland soils;**
- e) Square feet of disturbance for installation of 20-foot wide access roads in prime farmland soil, important agricultural soils, and non-prime farmland soils; and**
- f) Square feet of disturbance for installation of electrical equipment pads and underground electric cables in prime farmland soil, important agricultural soils, and non-prime farmland soils.**

A8: a) Acres of tree clearing requiring stumping/grubbing: approximately 21 acres.
b) Acres of tree clearing without stumping/grubbing: approximately 10 acres.
c) Square feet of disturbance for pole/post installation for solar racking and fencing in Prime Farmland, Farmland of Statewide Importance, and non-Prime Farmland soils: approximately 1,000 SF in Prime Farmland, 1,650 SF in Farmland of Statewide Importance and 240 SF in non-prime farmland soils.
d) Acres of disturbance for site grading in Prime Farmland soil, Farmland of Statewide Importance, and non-prime farmland soils: approximately 8 acres in Prime Farmland, 21 acres in Farmland of Statewide Importance, and 4 acres in non-prime farmland.
e) Square feet of disturbance for installation of 20-foot wide access roads in Prime Farmland soil, Farmland of Statewide Importance soils, and non-prime farmland soils: approximately 157,000 SF in Prime Farmland, 240,000 SF in Farmland of Statewide Importance, and 43,000 SF in non-prime farmland. It should be noted that installation of these access roads will not result in loss of topsoil.
f) Square feet of disturbance for installation of electrical equipment pads and underground electric cables in Prime Farmland soil, Farmland of Statewide Importance, and non-prime farmland soils: approximately 70,000 SF in Prime farmland, 115,000 SF in Farmland of Statewide Importance, and 23,000 SF in non-prime farmland.

Q9: Where is the nearest off-site residence located from the two potential construction access points and from each solar field area? Provide distance, direction and address of such off-site residences.

A9: The nearest off-site residence to the northwestern solar array is located at 13 Knollwood Circle, which is 275 feet to the east.
The nearest off-site residence to northeastern solar array is located at 1 Centerwood Road, which is 247 feet to the north.
The nearest off-site residence to central solar array is located at 14 County Road, which is 142 feet to the west.
The nearest off-site residence to southern solar array is located at 85 Hoskins Road, which is 197 feet to the north.
The nearest off-site residence to County Road construction access is located at 81 County Road, which is 122 feet to the south.
The nearest off-site residence to County/Hoskins Road construction access is located at 10 County Road, which is 562 feet to the northwest.

Q10: What is the output of the facility in megawatts, direct current (DC)?

A10: The project is designed as a 26.4 MW-AC / 37.4 MW-DC solar power generating facility. The final DC size of the project will be established based on final site-specific engineering.

Q11: On page 19 of ISO-New England, Inc.'s (ISO-NE) Final 2017 Solar PV Forecast, ISO-NE utilizes an AC MW to DC MW (AC/DC Ratio) of 0.83. Is it correct to say that the actual AC/DC Ratio can vary from one solar PV project to the next? Generally, which design considerations were used to determine the AC/DC Ratio of the proposed project?

A11: Yes, the specific AC/DC ratio can vary from one project to another. Generally the AC/DC ratio of a solar PV project is established based on the capacity of the local grid to accept power in AC, the capabilities of the inverters and the potential for solar generating capacity in DC on the land under control by the developer.

Q12: What are the percent losses associated with the inverters?

A12: We have estimated inverter losses to be approximately 2.5% of gross generation.

Q13: Explain why a solar panel orientation to the south with an angle at 25 degrees above the horizontal was selected for this facility. Is the project designed to maximize annual energy production or peak load shaving?

A13: The proposed panel orientation to the south and angle were selected to maximize total annual energy production.

Q14: How many photovoltaic panels are proposed for the Project? What is the efficiency of the photovoltaic panel technology of the proposed project?

A14: The project is designed using a 340 watt solar photovoltaic panel. At 37.4 MW-DC, the project is expected to require installation of 109,888 of such panels. The final size and number of panels is subject to final detailed engineering. Using these panels, the project is expected to operate at an annual efficiency of 14.6%, which is commercially reasonable and customary for a solar power facility of this size.

Q15: Is a battery or other type of energy storage system proposed? If yes, describe the function of lithium-ion battery or other type of storage system. What prediction methods and reports has the petitioner used to assess total capacity 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? Are the batteries or other type of energy storage used to “even out” the energy production, charging during the day and discharging at night, or are they charged during off-peak hours to grant more output during peak hours? Are they simply used to function as a power supply backup?

A15: No battery or other storage is proposed for the project at this time.

Q16: What parameters are used to determine the capacity factor of the project? Are there baseline capacity factors for different regions of the country based on historical weather patterns and geographic coordinates?

A16: The capacity factor for a solar generating facility is calculated using computational models to perform two steps. First, the models calculate the solar irradiation for the specific location and elevation of the solar project, considering diurnal and seasonal variations. Second, the models consider the details of the project design, including tilt and efficiency of the panels.

With respect to capacity factors for different regions of the country, there may well be different capacity factors for different regions of the country, however, DWW is unaware of what those may be at this time. DWW's focus has been on solar development in Connecticut, Massachusetts and Rhode Island, and thus DWW has not had occasion to consider different capacity factors for locations outside the Northeast. The proposed Project's capacity factor is consistent with that of other solar projects that have been developed in this region.

Q17: Would voltage and current be impacted by soft shading of the solar panels, such as air pollution, or hard shading of the solar panels, such as an accumulated solid? If so, is this factored into the capacity factor for the project?

A17: Voltage will remain unchanged at all levels of output. Current will vary based on the solar irradiation. To the extent shading reduces solar irradiation, it would also reduce current. The effects of shading have been considered in calculating the capacity factor for the project.

Q18: Would the impact of bird droppings, bird feeding habits (ex. Dropping food items such as clams or other prey on the solar panels) or weather events (ex. Snow or ice accumulation, hail, dust, pollen, etc.) reduce the energy production of the proposed project? If so, approximately how much and for how long? Would any of these expose the solar panels to ballistic or other damage? Has the petitioner assumed a certain percent loss of energy production for these issues on an annual basis? If applicable, what type of methods would be employed to clear the panels of the bird droppings or prey waste, snow and ice accumulation, hail, dust or pollen?

A18: Yes, soiling of the panels as a result of snow, ice, bird droppings, and other factors is expected to reduce the gross output of the solar facility. Our analysis, prepared by AWS Truepower, assumes that gross energy production will be reduced by 4.6% to account for such soiling. This amount is typical for solar power generating facilities of this type. Panels are most frequently cleared by precipitation, and are cleared periodically during routine maintenance.

Q19: Did the Petitioner conduct a Shade Study Analysis? Would shading present any challenges for the proposed project? Is most of the tree clearing to accommodate the project itself, or is some percentage of the tree clearing (e.g. to the south) associated with minimizing shading of the panels? Explain.

A19: Yes, shading has been accounted for in our energy production estimate, which was prepared by AWS Truepower. Their analysis found that gross energy production would be reduced by 4.2% to account for shading. This amount is typical for a solar power generating facility of its size.

The proposed acreage of tree clearing for shading corresponds with the tree clearing that will not require grubbing (Interrogatory #8b) of approximately 10 acres. This number represents approximately 31% of the nearly 30 acres of total proposed tree clearing for the project.

Q20: Provide the specification sheets for a) proposed inverters and b) solar photovoltaic panels.

A20: The specific inverters and solar photovoltaic panels have not yet been selected at this time. Final equipment selection will be made in conjunction with final detailed engineering. Given the ever-changing nature of the industry, such selections would be premature at this juncture, however, it would be anticipated that if the Siting Council approves this Petition, such information would be provided to the Siting Council as part of the petitioner's D&M Plan submittal to the Council.

Q21: What is the length of the solar racking support posts and to what depth would the posts be driven into the ground to provide structural stability?

A21: The solar racking support posts will be embedded 12 to 14 feet into the ground, however, the final design will be based on the results of geotechnical analysis. The posts will be 8-10 feet above ground.

Q22: Referring to petition p. 9, will two different types of racking foundations be used on this project (H-piles and concrete)? If so, what conditions would determine the type of rack support system? Which type of installation would result in more soil disturbance?

A22: Two different types of racking foundations are included in the petition: H-piles and concrete piles. H-piles are driven piles and are the most likely type of pile that will be used at the site. In the unlikely event that ledge is encountered, drilled concrete piles would be used. Soil disturbance is comparable for each type.

Q23: What is the design wind speed of the solar panels with the fixed vertical post foundations? What prevents the solar panels from separating from either the racking or the foundation during high winds?

A23: The design wind speed of the solar panels with the fixed vertical post foundations is 109 mph. The solar panels are bolted to the racking and the racking is bolted to the foundations. The bolting prevents separation during high winds.

Q24: What is the total length of all of the access roads combined in miles?

A24: 4.2 miles.

Q25: Why is a post-construction road width of 20 feet required for all roads within the project area? What is the minimum road width required for post-construction use?

A25: A post-construction road width of 20 feet is not required, however, based on the project team's conversations with first responders from the Town of Simsbury, this width is preferred. Final road widths will be determined during detailed engineering design and in additional consultation with First Responders. The minimum road width for post-construction use is approximately 12 feet, however this width is not achievable in all areas due to safety and accessibility concerns.

Q26: 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?

A26: The solar panels are blue/black, and no other colors are available. As the Council is well aware, any light reflecting off of the solar panels is light that will not be converted by the panels into electricity. Therefore, it is the project's desire, and the industry's goal in general to make PV panels be as non-reflective as possible. That having been said, there are no 100% non-reflective solar panels on the market today. The project anticipates that it will be using panels with a casing on the panels which is approximately 8% reflective.

Q27: Would the solar facility have an internal protection system to automatically shut the facility down in the event of a fault or automatically isolate the facility during abnormal grid disturbances or during other power outage events?

A27: The solar facility will have an internal protection system to shut down a portion or the whole solar facility, as appropriate, should a fault occur. The solar facility design will also include the ability to automatically isolate the facility during abnormal grid disturbances or during other power outage events.

Q28: Would the project comply with the National Electrical Code, the National Electrical Safety Code and any applicable National Fire Protection Association codes and standards?

A28: The project will be designed to comply with applicable codes and standards from the National Electrical Code, the National Electrical Safety Code and the National Fire Protection Association code.

Q29: Would glare from the solar arrays have any impact on air navigation? Is a solar panel glare analysis required by the Federal Aviation Administration (FAA)? If so, has an analysis been performed?

A29: Glare would not have an impact on air navigation. DWW filed a Notice of Project Construction with the FAA for the TVS Project. FAA issued a Determination of No Effect (DNE). The DNE is provided at Exhibit R of the Petition.

Q30: Would a crane be required for any portion of construction, e.g. to set the Project Transformer in place? If yes, would that necessitate construction notice to FAA for the height(s) of such temporary crane equipment?

A30: A crane is anticipated be required to set the transformer in place. However, the height of the required crane would be less than 200 feet and would therefore not require any construction notice to FAA.

Q31: Would the proximity of any existing or proposed outbuildings, structures, etc. present a fire safety or other hazard to facility components?

A31: None of the existing structures will remain within the perimeter fence surrounding the solar panels. No structures within the perimeter fence will present a fire safety or other hazard to facility components.

Q32: What affect would a brush fire have on the solar facility? 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?

A32: The following design and maintenance measures are used to mitigate the potential risk of a brush fire:

- a 20-foot wide perimeter road has been designed to acts as a fire break;
- vegetation will be mowed and maintained within the perimeter fence at least once annually; and
- management will reduce available fuel for fire (see Exhibit Q - Operations & Maintenance Plan)

In the event of a brush or electrical fire the following measures would mitigate risk to emergency response personnel:

- the project will coordinate with the Fire Department so it has knowledge of the issues and risks;
- the project will provide training for emergency responders; and
- the project is designed to be shut off remotely.

Q33: Is barbed-wire proposed for the top of the chain-link fence enclosing the solar fields?

A33: No barbed wire is proposed.

Q34: Referring to petition p. 7, please specify what solar facility equipment must be surrounded by a 7-foot tall fence.

A34: All above-ground equipment will be surrounded by a 7-foot tall fence.

Q35: Provide the cost per linear foot, with labor, for the installation of the 7-foot tall chain link fence and 10-foot tall vinyl fence.

A35: The project's current estimates are as follows:

An eight-foot tall chain link fence was priced because an estimate for 7 foot high fence is unavailable from current vendors. The fence will consist of chain link industrial, galvanized steel, made of 6 gauge wire, and will be constructed using 2 1/2" Posts, 10 feet on center. The cost for such a fence, including installation, excavation, and concrete is estimated to be \$42.92 per linear foot.

The ten foot high vinyl fence would be steel reinforced, with posts 8 feet on center. The cost estimate includes excavation, construction and delivery, but excludes post caps. The cost per linear foot for such a fence is estimated to be \$109.83 per linear foot.

Q36: If applicable, since the proposed project would connect to the 23-kV side of the electric system, but within a substation with existing transmission, would the petitioner have to obtain a determination of no significant adverse impact to the transmission system from the ISO-NE Reliability Committee?

A36: Because the project is to be interconnected with the 23 kV distribution system, it is not jurisdictional to ISO-NE. The interconnection is the jurisdiction of Eversource, as the distribution utility. Independent of the interconnection request, however, DWW plans to petition ISO-NE for eligibility to participate in the Forward Capacity Market. This will require an ISO-NE study of the transmission system to determine deliverability of the capacity.

Q37: Referring to petition p. 10, what is the estimated cost of each interconnection alternative?

A37: At this time, DWW does not have cost information. The cost of each alternative is comprised of DWW costs and Eversource's costs to interconnect the project which would be for the account of DWW. Eversource is currently studying the feasibility of each interconnection alternative. Once feasibility has been determined, if an alternative is feasible, DWW and Eversource will develop a budget for that interconnection alternative.

Q38: What, if any, upgrades would be necessary at North Simsbury Substation in order to accommodate the interconnection of the proposed project? If substation upgrades are required, would that be a separate petition filing to the Council from Eversource?

A38: The interconnection study, which is currently in process with Eversource, will determine the specific upgrade requirements, if any. Given the project's small size, it is expected that its interconnection with the grid will require no material upgrades to the substation. Upgrades, if any are required, would be completed by Eversource.

Q39: Would all of the power produced go to the grid or would any be for internal use? Would the power produced by the project be used regionally, locally or both?

A39: Operation of the solar facility is expected to consume approximately 1.2% of its gross output. The net output from the solar facility will be sold in accordance with the terms of the project's PPAs. However, as the Council is well aware, the actual users of the output generated by the facility are likely to be local and regional users.

Q40: Referring to petition Exhibit I, p. 6, were the most recent studies concerning PV installations and bird collisions limited to waterbirds or were other types of birds included?

A40: The literature reviewed by Harrison et al. (2016) does not address a specific taxa of bird (e.g. water birds, song birds, etc.). However, Bryant et al. (1984) suggests that in addition to water birds, the Hirundinidae family (swallows and martins) may be vulnerable to PV collisions if they mistake the PV developments for water because these species are known to drink on the wing.

Q41: Referring to petition Exhibit I, p. 11, is the proposed tree clearing restriction specific only to the Northern Long-eared bat or does it include other types of bats?

A41: The tree clearing restriction covers Northern Long-eared bat as well as other species of bats. The USFWS prohibits the incidental take of northern long-eared bat as a result of tree removal activities during the timeframe between June 1 and July 31 if the trees are known occupied maternity roost trees or any trees within 150 feet of a known maternity roost tree. This time-of-year (TOY) restriction for tree removal activities is in place because it is their active pupping season when the young are reared by females. As noted on page 11 of the Wildlife Evaluations Technical Memorandum, bat surveys were not conducted and therefore the Petitioner will operate under the assumption that state and federally listed bat species may be present within the Project Area, out of an abundance of caution.

The TOY restriction targeting the northern long-eared bat pupping season also coincides with the pupping seasons of the three State-Listed bat species of Special Concern: red bat, silver-haired bat, and hoary bat. As with the northern long-eared bat, these three bat species are migratory and are known to roost in the foliage or trunks of trees (Griffin, 1970). According to Shump and Shump (1982a), hoary bats typically birth young from mid-May to early July and the young are volant approximately four to five weeks after birth. Another study by Shump and Shump (1982b) of the eastern red bat recorded that most young are born in mid-June and are weaned and able to fly independently within four to six weeks after birth. Kunz (1982) studied the reproductive cycle of the silver-haired bat and determined that young are born in mid-June to early July and that the young and weaned and volant approximately 5 weeks after birth.

The Petitioner is proposing to expand the TOY restriction for tree removal activities from May 15 to July 31 to ensure that hoary bats, which can begin parturition in mid-May ahead of the other species, are also protected from tree removal activities during the pupping season.

Q42: Will development of the project require a DEEP General Permit for Discharge of Stormwater and Dewatering Wastewaters from Construction Activities?

A42: Yes.

Q43: Can the project be phased so that construction would avoid the disturbance of over five acres at a time? Please detail how phasing would be accomplished and what activities were to occur in each phase.

A43: The project will be phased wherever possible, however, it should be noted that the land is currently being used for agriculture and is often disturbed with more than five acres of soil being exposed at any one time. The Conditions of the Construction General Permit applying to the Stormwater Pollution Control Plan sequencing (Section 5(b)(1)(B)(iii)) instructs: *Wherever possible, the site shall be phased to avoid the disturbance of over five acres at one time...* A detailed phasing plan has not been completed at this time. Due to the size and scope of the project, is likely that the plan will include phases where more than five acres of soil are disturbed across the entire site.

The phasing plan will include these elements to minimize the areas of active soil disturbance:

- Prior to construction, a cover crop will be established on all agricultural soils on the property.
- In these agricultural fields, most of the array will be constructed on existing grade without soil disturbance other than the driven piles that will support the solar collectors.
- Areas cleared of trees and grubbed will be seeded as soon as final grades are achieved.
- Roadways will be stabilized with processed gravel as they are constructed.
- Completed utility trenches will be backfilled at the end of each workday.
- Where temporary cover is needed, quick germinating grasses or buckwheat will be used for stabilization.

Q44: Explain when temporary sediment traps would be established and how/when grading and project installation in the area of the traps would be accomplished.

A44: Sediment traps will be installed at the bottom of each of the project's sub-watersheds when the contributing area exceeds one acre, but is less than five acres. Points receiving runoff from catchments greater than five acres would be provided with a temporary sediment basin designed by a professional engineer. These features would be constructed after perimeter sediment controls are installed, but prior to land disturbing operations in the contributing watershed. In cleared woodlands, sediment traps would be installed during grubbing operations.

Q45: Would the stormwater design be installed in phases to control stormwater flows onto adjacent properties during construction?

A45: As described in the previous response, temporary sediment traps and basins will be installed in the earliest phases of construction and would control stormwater flows during construction.

Q46: Referring to Petition Exhibit L, p. 16. Are there established protocols to immediately correct issues identified by the stormwater inspector?

A46: Yes. If the issue rises to the level of a violation, Section 5 (g) of the Stormwater Construction General Permit states the *permittee is required to immediately take all reasonable action to determine the cause of such violation, correct and mitigate the results of such violation, prevent further such violation, and report in writing such violation and such corrective action to the commissioner within five (5) days of the permittee's learning of such violation.* For BMP maintenance sediment and erosion controls, protocols will be added to the Stormwater Pollution Control Plan requiring the contractor to immediately address deficiencies identified by the qualified inspector.

Q47: Referring to petition Exhibit N, does the Acoustic Analysis account for multiple inverters operating at the same time? How was the noise from multiple inverters factored into each receptor location?

A47: The acoustical analysis accounted for 14 inverters and 14 transformers operating simultaneously throughout the project site as presented on Figure 1 in Exhibit N. The acoustical analysis utilized the CadnaA software program to calculate the combined sound levels from all 14 pair of equipment at the receptor locations. The sound levels were projected to the receptor locations using the properties of sound propagation following the International Organization of Standardization (ISO) 9613 methodology. The calculations considered the distances between the receptor locations and equipment and accounted for the varying terrain within the study area.

Q48: Referring to petition Exhibit O, p. 21. Did the petitioner request information from the landowner about the monitoring wells in parcel 5, south of Hoskins Road?

A48: No.

Q49: Referring to petition Exhibit O, p. 23. Has there been any assessment for the potential of pesticide residues to be within the project area soils? If pesticide residues are present, would development of the project contaminate deep soil layers or cause an environmental hazard due to exposed soils and re-grading activities?

A49: There has been no assessment of potential pesticide residues within the project area soils. The development of the project would not contaminate deep soil layers or cause an environmental hazard.

Q50: Referring to petition Exhibit O, p. 24. Has GZA received any additional information regarding the “significant data gap” in land use at the site? Has the petitioner requested further information?

A50: GZA has not received any additional information.

Q51: Would the solar panels “heat” rainwater and potentially thermally pollute wetlands?

A51: No.

Q52: Referring to petition Exhibit G, p. 8. What type of school is the Squadron Line School? Are the school fields used for recreational purposes?

A52: Based on information and belief, Squadron Line School is a public elementary school. Based on information and belief, the school fields are used for recreational purposes.

Q53: Referring to petition Exhibit G, p. 11 and Figure 4. Does the petitioner expect visibility of the project from Knollwood Circle (beyond point 69) and Howard Street? If so, describe or depict expected visibility without proposed vegetative mitigation.

A53: Visibility along Knollwood Circle and Howard Street is described in section 3.2.2 and Section 3.3 of the Visibility Assessment (Appendix G). In summary, visibility may be available along portions of Knollwood Circle and Howard Street. Project facilities will typically be viewed through dense vegetation and, in the case of Knollwood Circle, a substantial topographic rise leading up to the Project site. This is based on summer observations from Knollwood Circle and from the Project Site looking toward Knollwood Circle. From Howard Street, the existing vegetative buffer will remain intact in the vicinity of the homes. This existing vegetative buffer is approximately 100-200 feet wide, and thus will provide substantial screening in the direction of

the Project. It is the Petitioner's opinion that visibility will be minimal at both the Howard Street and Knollwood Circle locations.

Q54: Describe the effects of reflective glare on adjacent properties.

A54: As described in greater detail in the response to Interrogatory #26, the panels will be minimally reflective. Therefore no effect is anticipated.

Q55: Referring to petition p. 61, clarify road construction procedures for this project – is any top soil being removed prior to the installation of geotextile fabric and gravel? If so, in what location and to what depth? Is compaction required for the gravel roads prior to use? If so, how will compaction be accomplished and to what standard?

A55: No topsoil will be removed in areas where there is currently active agriculture. In these areas, the geotextile fabric and gravel will be placed over the topsoil. Compaction is required for gravel roads prior to use. Topsoil will be compacted with a vibratory plate compactor to 95% compaction, tested by standard proctor test, prior to installation of geotextile fabric and crushed stone atop. The topsoil is to be scarified as necessary during decommissioning of project and removal of geotextile fabric and crushed stone.

Q56: Estimate the amounts of cut and fill in cubic yards for a) access roads and b) general site grading, if applicable.

A56: The cut/fill for access roads not adjacent to solar array is estimated to be: 0 CY cut, 150 CY fill, for a net 150 CY fill. The cut/fill for general site grading (including perimeter access roads) is estimated to be: 58,700 CY cut, 21,500 CY fill, for a net net 37,200 CY cut.

Q57: Describe the potential route of construction traffic from main roads to the project access points. Estimate the number of construction vehicles entering and exiting the site per day and provide a breakdown per construction activity if traffic variation exists. What access roads would be used for each type of activity?

A57: Construction traffic will primarily come from Route 202 and enter the site from County and Hoskins Road. During the peak employment period during construction, it is anticipated that a work force of up to 80 to 100 employees (driving passenger vehicles/pick-up trucks) could be present. Based on past experience, the arrival times for this construction activity are before typical peak morning commute periods and similarly the evening departure is before the evening peak commute (contractors tend to arrive early and leave early). The residual trips occurring at the same time as the morning or evening commute period would be minimal. Most construction equipment will reside on the site during construction with deliveries made during an initial mobilization period of one or two weeks and a somewhat longer demobilization process. Deliveries of materials via trucks will be made to the site throughout the construction period adding approximately ten to 20 new trips per day occurring throughout the workday. Truck traffic from earthwork removal from the site is expected to be minimal since the intent is to keep any earthwork from cut/fill activity on-site.

Q58: 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.

A58: The construction contractor has not yet been selected by DWW. During the selection process, DWW will give preference to firms with experience constructing other solar projects of 5MW or greater in the Northeast.

Q59: What kind of equipment will drive the solar racking support posts into the ground? In the event that ledge is encountered, what methods would be utilized (ex. mechanical chipping or blasting) or would relocation of the posts be utilized instead of chipping or blasting?

A59: Posts will be driven into the soil using Vermeer PD10s or similar solar pile driving equipment. Ledge is not anticipated, however if encountered, the ledge will be drilled and the posts placed in concrete. So long as the ledge is at least 6 feet deep, it is unlikely any drilling will be necessary.

Q60: List the recommended construction-related environmental restrictions for birds/bats, and other species. How would the petitioner sequence construction of the project to account for these restrictions?

A 60: Exhibit J includes the proposed conservation measures for State-listed species that have the potential to occur within the Project Area. This response updates some of the proposed conservation measures from the exhibit with findings from field surveys conducted since the filing was made for the project. The Petitioner will ensure that the protective measures are in place prior to the start of construction and that proposed time-of-year (TOY) restrictions for vegetation removal are followed.

Enhanced erosion and sediment controls will be installed along slopes that drain directly to Munnisunk Brook, Saxton Brook and Bissell Brook will minimize indirect effects on the following water-dependent species:

- Rapids clubtail (*Gomphus quadricolor*);
- Dwarf Wedge mussel (*Alasmidonta heterodon*);
- Eastern Pearlshell Mussel (*Margaritifera margaritifera*); and
- Eastern Pondmussel (*Alasmidonta heterodon*).

There is no habitat for the Northern Leopard Frog (*Rana pipiens*) present within the Project Area. Therefore, no protective measures are proposed.

Biologists conducted a survey for host plants for the Spiny flower moth (*Schinia spinosae*) and Scribbled sallow moth (*Sympistis perscripta*). The spiny flower moth favors coastal jointed knotweed (*Polygonum articulatum*), however this flower was not observed during surveys. The scribbled sallow moth uses Canada toadflax (*Nuttallanthus canadensis*) as its larval host plant. VHB biologists identified some stands of this plant within the Eversource right-of-way and marked the area so that it will be avoided during construction.

Searches for the big sand tiger beetle (*Cicindela formosa generosa*) during its active stages in the spring and early summer failed to find this species in the project area. Few soil areas with sandy surface textures suitable for this species were found onsite. No protective measures are proposed.

None of the three protected reptile species identified in NDDDB letter, eastern box turtle (*Terrapene carolina*), wood turtle (*Clemmys insculpta*) or eastern hognose snake (*Heterodon platirhinos*) were encountered during field surveys. Since the potential for these species to occur cannot be ruled out, a contractor awareness program will be implemented to ensure that contractors can identify these species, stop work and contact the environmental monitor.

Entrenched silt fence will be used to isolate the work area from undisturbed area that may provide suitable habitat. The work area will be examined by trained individuals during a walk-over or sweep prior to work each day. To the extent possible, construction vehicles and equipment will be parked along access routes and in active work areas and not in potential suitable habitat. If construction activities are carried out during the species' active period, environmental monitoring by qualified personnel will be provided. Any individuals of these species encountered during construction will be removed from the active work area.

Breeding bird surveys conducted in the Spring of 2017 did not identify any of the State-listed bird species within the Project Area. However, to avoid the potential disturbance of birds during the breeding season, DWW proposes a TOY schedule to limit disturbance during the nesting period. The nesting period for most bird species occurs May through mid-August, therefore vegetation removal work (forest tree removal) should be cleared before May 1st and after mid-August. This vegetation removal schedule also serves to protect any potential tree-roosting bats located within the Project Area, as described in greater detail in the response to Interrogatory #41. This TOY schedule will protect the following State-listed and Federally-listed species:

- Horned Lark (*Eremophila alpestris*); Vesper Sparrow (*Pooecetes gramineus*); Savannah Sparrow (*Passerculus sandwichensis*); Grasshopper Sparrow (*Ammodramus savannarum*); Whip-poor-will (*Caprimulgus vociferus*); and Brown thrasher (*Toxostoma rufum*)
- Red bat (*Lasiurus borealis*); Silver-haired bat (*Lasionycteris noctivagans*); Hoary bat (*Lasiurus cinereus*); and Northern long-eared bat (*Myotis septentrionalis*)

Surveys are on-going for the State-listed vascular plants Dillenius' tick-trefoil (*Desmodium glabellum*), tall swamp rosette-panic grass (*Dichanthelium scabriusculum*) and Starry campion (*Silene stellata*). Suitable habitat is not thought to be present for Davis' sedge (*Carex davisii*). If any of these species are identified during surveys, the Petitioner will work with the CTDEEP to develop a conservation strategy.

Q61: Does the petitioner intend to clear snow/ice that settles on the panels and is not dislodged for a number of days? If so, how would the petitioner accomplish this task?

A61: The snow would be removed by hand with brooms, ice would be removed with a pressure washer. If snow builds up on the panels and cannot slide off due to accumulated snow beneath the drip line of the panels, a snowblower mounted on a skid loader will be used to remove the snow under the drip line. That will free up the snow on the panels to slide off.

Q62: Has any analysis been conducted to determine structural limits of snow/ice accumulation on the solar panels and steel support structures? Is the angle of the solar arrays conducive to retaining heavy-wet snow? If so, what snow accumulation would reach structural capacity of the racking system? Would the Petitioner clear snow from the panels when it approached the limit?

A62: The foundation design is based on the snow loading requirements for the area in which the array is constructed in accordance with the IBC and UBC guidelines. The panel slope and glass composition will be highly conducive to preventing buildup as the panel will heat slightly under sun and create a water lubrication film between the panels and the snow, and the snow will simply slide off, similar to snow sliding off a sheet metal roof.

Q63: Would the petitioner adhere to any seasonal restrictions on post-construction mowing/vegetative maintenance due to the presence of protected species?

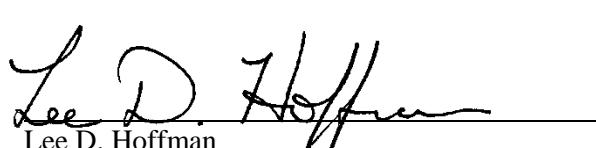
A63: Yes. VHB conducted avian surveys of the agricultural fields, woodlands, and electric transmission corridors during the spring 2017 breeding season and did not detect any protected grassland bird species. It is unlikely that the grass cover within the arrays would attract grassland birds due to the presence of the collector structures. However, parts of the property outside of the solar installations and fence lines that will be maintained in blocks of grassland or shrub cover may provide suitable habitat for protected grassland/early successional bird species after the project is functional. Seasonal restrictions on mowing of these areas could be beneficial to pollinators and protected wildlife.

Q64: Once the facility is operational, estimate the number and frequency of vehicles visiting the site for operation and maintenance.

A64: On average, three vehicles would visit the site per week during the Operations and Maintenance Phase which would start about 6 months post-construction.

Respectfully Submitted,
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Certification

This is to certify that a copy of the foregoing has been mailed via U.S. Mail, first class postage prepaid, and/or electronically mailed on August 28, 2017 to all parties and intervenors of record, as well as all pending parties and intervenors as follows:

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