March 23, 2023

VIA ELECTRONIC DELIVERY

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

RE: Petitioner #1557 -- LSE Hercules LLC ("Lodestar") for a Declaratory Ruling that No Certificate of Environmental Compatibility and Public Need is Required for the Construction, Operation and Maintenance of Solar Photovoltaic Facility in Enfield, Connecticut

Dear Attorney Bachman:

In connection with the above-captioned petition, please find the original and fifteen (15) copies of petitioner LSE Hercules' interrogatory responses to interrogatories issued by the Council on March 3, 2023. Please contact me directly if you have any questions.

Sincerely,

Carrie L. Ortolano

Carrie L. Ortolano
General Counsel

Enclosures

STATE OF CONNECTICUT SITING COUNCIL

PETITION OF LSE HERCULES LLC FOR A DECLARATORY RULING THAT NO CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY AND PUBLIC NEED IS REQUIRED FOR THE CONSTRUCTION, OPERATION, AND MAINTENANCE OF A 4 MW AC SOLAR PHOTOVOLTAIC FACILITY IN ENFIELD, CONNECTICUT

PETITION NO. 1557

MARCH 24, 2023

LSE HERCULES LLC'S INTERROGATORY RESPONSES
COUNCIL INTERROGATORIES SET ONE

Petitioner LSE Hercules LLC ("Petitioner") submits its responses to the Council's first set of interrogatories dated March 3,2023 as follow:

Project Development

1. What is the estimated cost of the project?

RESPONSE: Petitioner anticipates that the procurement and construction of the Project will cost approximately $7,000,000 inclusive of interconnection and permitting.

2. Is the project, or any portion of the project, proposed to be undertaken by state departments, institutions or agencies, or to be funded in whole or in part by the state through any contract or grant?

RESPONSE: This project is part of the Shared Clean Energy Facility (SCEF) which is a statewide program. The statewide SCEF Program was developed pursuant to Section 7(a)(1)(C) of Public Act 18-50, An Act Concerning Connecticut's Energy Future, codified as Section 16-244z(a)(1)(C) of the General Statutes of Connecticut. The statewide SCEF Program seeks the deployment of new or incremental Class I renewable generation projects for a 20-year term. Eligible projects are chosen through a competitive bidding procurement process each year, for a total of 6 years. The first procurement occurred in 2020 and this project participated and won an auction in Year 3 of the program.

3. Have any abutters provided comments to Lodestar since the Petition was submitted to the Council? If yes, summarize the comments and how these comments were addressed.

RESPONSE: Petitioner received delivery confirmation of all abutters notifications. Petitioner was contacted by Darlene Weatherbee at 15 Diamond Drive. She raised a concern about field

mice/rodents relocating to nearby properties as a result of site disturbance at the Site but also noted that this is already an issue today at her property. Given the nature of the Site owner's existing operations on the Site, Petitioner does not anticipate that Site construction will impact the current situation on the Site and neighboring properties.

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

RESPONSE: The Project will require a stormwater General Permit (GP 15) from the Department of Energy and Environmental Protection ("DEEP") along with both building and electrical permits from the Town of Enfield. Petitioner LSE Hercules LLC will hold all of the required permits.

Proposed Site

5. Submit a map clearly depicting the boundaries of the solar facility site and the boundaries of the host parcel(s). Under Regulations of Connecticut State Agencies §16-50j-2a(29), "Site" means a contiguous parcel of property with specified boundaries, including, but not limited to, the leased area, right-of-way, access and easements on which a facility and associated equipment is located, shall be located or is proposed to be located.

RESPONSE: See Exhibit 1 attached hereto.

6. Referencing Petition pages 17 and 21, the site is located on and around the Enfield landfill and active transfer station. Explain.

RESPONSE: This reference is a typographical error. The site is not located on and around the Enfield landfill and active transfer station.

7. Referencing Petition pages 1 and 10, what commercial activities are currently conducted by the host property owner on the proposed site and properties surrounding the proposed site? Identify which parcel for each activity.

RESPONSE: 113 Raffia Rd is mostly cleared and used for timber processing, chipping, and storage. 95 Raffia Road, which is adjacent to the Project Site and under common ownership, has several commercial businesses including restaurants and retail outlets.

8. In the lease agreement(s) with the host property owner, are there any provisions related to decommissioning or site restoration at the end of the project's useful life? If so, please describe and/or provide any such provisions.

RESPONSE: Petitioner will be required to remove the Project from the Site and restore the land at the termination/expiration of Petitioner's lease.

9. What is the length of the lease agreement with the host property owner? Are there provisions for an extension?

RESPONSE: Petitioner's lease has a term of twenty (20) years with three (3) five (5) year renewal options for a total potential lease term of thirty-five (35) years.

10. Is the host 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)? How would the facility affect the use classification?

RESPONSE: No, no portion of the Property is part of the Public Act 490 program.

11. Has the State of Connecticut Department of Agriculture (DOAg) purchased any development rights for the facility site or any portion of the facility site as part of the State Program for the Preservation of Agricultural Land?

RESPONSE: No.

12. Provide the distance, direction and address of the nearest property line and nearest off-site residence from the solar facility perimeter fence. What are the addresses of these properties?

RESPONSE: Both the nearest property line and nearest off-site residence to the proposed facility are at 81 Raffia Road, which abuts the northwestern extent of the proposed facility. At its nearest point, the property line is approximately 35 feet from the facility fence and the residence is approximately 160 feet from the facility fence. There is an existing vegetative buffer between the Project and this property, which will remain.

Energy Output

13. What is the anticipated capacity factor of the Project? Would the capacity of the system decline over time? If so, estimate annual losses.

RESPONSE: The capacity factor of the system is 21.4%. PV Solar panels degrade at a fixed rate of 0.3% to 0.5% per year. This means that after 20 years, the system will be producing at approximately 90% of its initial capacity.

14. Is the project being designed to accommodate a potential 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 SCEF Agreement.

RESPONSE: There is no current plan for battery installation because such technology is not part of the existing state regulatory regime. In the event that the regulatory environment changes, Petitioner may later seek to install batteries at the Project and, if so, sizing and location would be determined at that time and Petitioner would then seek the required regulatory approvals to do so, including any approvals required by the Siting Council.

15. Would Lodestar participate in an ISO-NE Forward Capacity Auction? If yes, which auction(s) and capacity commitment period(s)?

RESPONSE: No, this is not allowed under SCEF program rules.

16. If one section of the solar array experiences electrical problems causing the section to shut down, could other sections of the system still operate and transmit power to the grid?

RESPONSE: In the event there is an issue with a portion of the array, the inverter dedicated to this portion will issue a fault and safely restrict power flow. The operations and maintenance team will receive an alert that this inverter requires attention and will repair as necessary. The remainder of the inverters will remain operational during this repair/diagnostic period. In the event there are abnormal conditions or a complete outage from the utility grid, all inverters will disconnect from the grid in unison, immediately, and automatically via the SEL vista switchgear. As noted in the petition, there will be a total of thirty-two (32) inverters.

Site Components and Solar Equipment

17. Is the wiring from the panels to the inverters installed on the racking? If wiring is external, how would it be protected from potential damage from weather exposure, vegetation maintenance, or animals?

RESPONSE: Yes, DC wiring is to be installed on the racking directly below the modules. The racking system is designed to incorporate the wiring close to the modules with no loose conductors. According to the National Electric Code, this circuitry must consist of a special conductor called USE-2 also known as "photovoltaic wire." USE-2 is specifically designed for this Project. Although the circuitry is mounted below the modules and not exposed to direct sunlight, USE-2 consists of a unique insulation that is resistant to UV exposure for extended periods. In addition, USE-2 wire consists of a thicker insulation jacket that shields the circuit from animal intrusion, chafing, etc. As a fail-safe for unanticipated events, each circuit is fuse-protected, which protects the circuit from thermal concerns and short circuits.

18. What is the minimum aisle width at which the solar panel rows could be installed?

RESPONSE: The minimum aisle width at which the solar panel rows could be installed is 13.7 feet.

Interconnection

19. Is the facility interconnection required to be reviewed by ISO-NE?

RESPONSE: No.

20. Referencing Petition pages 9 and 10, and Attachment 1 – Sheet SP-0 of the Petition, of the six proposed poles, what is the height of the utility poles above ground level after installation? Can the number of poles be reduced by consolidating equipment?

RESPONSE: The utility poles are provided by and installed by Eversource and any change in the number of poles or design thereof would require approval by Eversource. The average height above grade for the utility poles being installed is 30-40 feet. Eversource does not typically allow consolidation of their equipment.

21. Is the existing electrical distribution on Raffia Road three-phase or would it have to be upgraded from single-phase to three-phase?

RESPONSE: Yes, the existing electrical distribution is three-phase.

Public Safety

22. Would the project comply with the current Connecticut State Building Code, National Electrical Code, the National Electrical Safety Code, and any applicable National Fire Protection Association codes and standards including, but not limited to, NFPA Code Section 11.12.3?

RESPONSE: Yes. The Project will comply with all applicable standards.

23. Referencing page 6 of the Petition, Lodestar notes that a 6-foot fence (with a 6-inch wildlife gap at the bottom) is proposed. Referencing page 17 of the Petition, Lodestar notes that a 7-foot fence is proposed, consistent with the National Electrical Code. Referencing Attachment 1 of the Petition, Sheet DN-1, a 6-foot fence with a 4 to 6 inch wildlife gap is proposed. Please clarify.

RESPONSE: Petitioner is proposing a seven (7) foot fence with a six (6) inch wildlife gap.

24. Where is the nearest federally-obligated airport? Is a glare analysis required to comply with FAA policy?

RESPONSE: The nearest airport is 9.5 miles away. No glare analysis was required by the FAA during their review of the Project.

Environmental

25. Referencing page 19 of the Petition, Lodestar notes that there would be 1.21 acres of tree clearing. Referencing Attachment 7, Environmental Assessment, page 22, Lodestar notes that there would be approximately 3.50 acres of tree clearing. Please clarify. Of the total acreage of tree clearing, provide the acreage of tree clearing without grubbing and the acreage of tree clearing with grubbing.

RESPONSE: The site plans provided as Exhibit 1 of the Petition depict approximately 2.75 acres of total tree clearing. Of this, approximately 1.23. acres occur in areas where tree topping only

(i.e., no stump removal) is proposed and another 1.52 acres that includes full clearing and grubbing is shown within the Limit of Disturbance.

The 3.5 acres of impact referenced on page 22 of the Environmental Assessment (Exhibit 7 of the Petition) is a calculation of the Project's proposed impact to the "Edge Forest" habitat type within the Project Limit of Disturbance. An additional 1.35 acres of impact to the 'Edge Forest' habitat type is represented by the area of tree topping. See Exhibit 2 attached hereto.

The Attachment 7 reference to 3.50 acres of tree clearing was specifically referring to impacts to Edge Forest ***habitat*** and ***not general clearing***, which may be the reason for any perceived inconsistency. It should be noted that 'Edge Forest' habitat is identified as vegetated community types, which may include transitional ecotones which account for functional habitat blocks for the purposes of the Habitat and Wildlife environmental assessment. In contrast, the approximate 2.75 acres of total clearing as shown on the plans is derived from precise surveyed areas of mature tree clearing that may or may not be identified as functional habitat units within the 'Edge Forest' habitat block.

26. Under Connecticut General Statutes §16-50k, "Core forest" means unfragmented forest land that is three hundred feet or greater from the boundary between forest land and nonforest land, as determined by the Commissioner of Energy and Environmental Protection." Identify the number of acres of tree clearing within edge forest and the number of acres of tree clearing with core forest, if applicable. Provide an aerial photograph that depicts pre- and post-construction acreage of core and edge forest.

RESPONSE: As provided in the petition filing, Petitioner consulted with DEEP and DEEP determined that the Project will have no impact on core forest. See Petition filing, Exhibit 7 at Appendix C, DEEP correspondence dated November 18, 2022. In addition, the Petitioner has reviewed all proposed clearing on-Site and confirmed that it will entirely occur within "edge forest" habitat. No tree clearing is proposed within core forest areas. Please see attached aerial view with core and 'edge forest' habitat pre- and post-construction depicted, as seen in Exhibit 2 .

27. Referencing Attachment 7 of the Petition, Environmental Assessment, pages 25 and 26, the U.S. Fish and Wildlife Service reclassified the northern long-eared bat as Endangered. Lodestar notes that, "It is anticipated that a revised consultation process will be implemented, and that additional review for the Project will be required." Provide the status or results of any additional consultations/review regarding the northern long-eared bat.

RESPONSE: The effective date of the reclassification of the northern long-eared bat is March 31, 2023. Information on a revised consultation process was released on or about March 15, 2023. No additional consultations/review have been undertaken; Petitioner will meet any requirements deemed applicable under the new process.

28. Referencing page 16 of the Petition notes that, "The Site is not located within an Aquifer Protection Area." Referencing Attachment 7 of the Petition, Environmental Assessment, pages 9 and 18, portions of the site appear to be located within a DEEP-designated APA. Explain.

RESPONSE: As noted in Petitioner's supplement filing dated March 3, 2023, Petitioner agrees that there is one incorrect reference in the narrative of the petition (page 16) stating that the Site is not in an aquifer protection area. The correct references and documentation are included in: The aquifer protection area is depicted in Figures 2 (page 5) and 3 (page 9) and also discussed on pages 17-18 of the Environmental Assessment, Exhibit 7 of the petition. Contrary to the Town's assertion, the petition (Exhibit 7 therein) does depict the aquifer boundary on the Site. And, as noted therein, the Petitioner will consult with the Hazardville Water District prior to the commencement of construction. It should also be noted that the Department of Public Health may offer comments on the Petition.

The Project's Resource Protection Plan includes specific protections for the aquifer protection area and is included in the petition filing. Sheet GN-2 of the Site Plans (Exhibit 1 of the Petition) details the Resource Protection Plan. The Resource Protection Plan will ensure that there is no impact to the aquifer protection area through limited refueling on Site, a comprehensive spill prevention plan, and diligent monitoring by both the contractor and the Environmental Compliance Monitor. LSE is committed to implementing these measures. Exhibit 3 of the Petition has been updated to confirm this commitment. Please see revised Operations and Maintenance Plan attached to supplement filing dated March 1, 2023.

29. Are there any wells on the site or in the vicinity of the site? If so, how would the petitioner protect the wells and/or water quality from construction impacts, such as vibrations and sedimentation?

RESPONSE: Because the Site and vicinity are not served by a public water supply, it is presumed that private wells serve residences and businesses in the vicinity. Vibrations from installation of racking systems for the solar panels are not anticipated to cause sediment releases, and there should be no disruption to either well water flow or quality. As noted in response to Interrogatory 28, Petitioner is committed to implementing a comprehensive Resource Protection Plan as well as complying with all requirements for Erosion and Sedimentation Control. Together, they will protect groundwater and surface water.

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

RESPONSE: Runoff from the panel drip edges is not anticipated to have any significant effect on site drainage patterns. There are gaps between each module that allow stormwater to flow off the panels at multiple locations. As a result, channelization below the drip edge is not expected.

31. What is the length of the posts and to what depth would the posts be driven into the ground to provide structural stability? Are any impacts to groundwater quality anticipated? If so, how would the petitioner manage and/or mitigate these impacts?

RESPONSE: The length of posts and depth to which they will be driven will be determined based on geotechnical investigation and structural analysis, which has not yet been undertaken. The final

structural design, including the length and depth of posts, will be provided upon completion of the geotechnical investigation and structural analysis. The industry standard anticipated embedment will be between 4-6 ft respectfully.

32. Where is the nearest publicly accessible recreational area from the proposed site? Describe the visibility of the proposed project from this recreational area.

RESPONSE: The nearest recreational resource is Scantic River State Park, the nearest point of which is approximately 0.25 mile northeast of the proposed project. No visibility is anticipated from this resource due to intervening woodland.

33. Referencing page 17 of the Petition, has Lodestar received a response from the State Historic Preservation Office (SHPO) regarding the Phase 1B Survey results? If yes, provide a copy of such response.

RESPONSE: The SHPO responded by letter dated January 18, 2023, stating "SHPO concurs with the findings of the report that no additional archeological investigations are warranted and that no historic properties will be affected by the proposed project." A copy of the letter is attached as Exhibit 3.

Facility Construction

34. Referencing page 15 of the Petition, what is the status of the DEEP Stormwater Permit?

RESPONSE: The DEEP stormwater permit is pending.

35. Has a sediment trap been removed from the site plans per discussions with DEEP? Provide updated plan(s) if applicable.

RESPONSE: In Petitioner's pre-filing meeting with the DEEP stormwater team the DEEP team agreed that one proposed sediment trap should be eliminated in favor of minimizing clearing that would be required solely for development of the sediment trap. The plans included in the petition filing (Exhibit 1) were updated to reflect that removal requested by the DEEP.

36. Would any fueling or use of hazardous materials occur outside of the Aquifer Protection Area (APA)?

RESPONSE: As noted in Petitioner's supplemental filing dated March 3, 2023, no refueling will occur in the APA.

37. Summarize any potential impacts to terrace escarpments associated with the Project. Would tree topping be monitored to prevent slope disturbances?

RESPONSE: There is one (1) terrace escarpment, consisting of slopes greater than 15%, on the Site of the Project, which is located outside of the limit of disturbance as shown on the Site Plans

included with the petition (see Exhibit 1). As stated by the Town, the Town has a GIS layer depicting escarpments As Petitioner informed the Town during the February 21, 2023 hearing Petitioner did, indeed, review state and local GIS information. Petitioner conducted a wetlands/soil delineation of the Site, which included review and confirmation of highly erodible soils, including escarpment slopes. As the Council is aware, the on-Site delineation and Site-specific assessment supersedes the local GIS escarpment slope information and was used in project design to identify the appropriate limit of disturbance, limit work to slopes less than 15%, and develop a project-specific Resource Protection Plan that includes monitoring during construction to ensure protection of escarpment slopes and nearby downslope sensitive wetland resources. Because the slopes in question in the terrace escarpment were recognized as highly erodible, the Project design avoids any development within or in proximity to them and avoids impact to the terrace escarpment. The avoidance of impacts to the terrace escarpment are also required by the DEEP Stormwater Appendix I. Petitioner is in full compliance with Appendix I and, as noted in the petition, met with DEEP Stormwater personnel to confirm that compliance. The Project's relationship to wetlands is detailed in the Environmental Assessment report. Slope protection measures and monitoring protocols are outlined in the Resource Protection Plan and are contained in the Petition.

38. Has the Petitioner consulted with the DEEP Dam Safety program regarding permitting requirements, if any, for the proposed stormwater basins?

RESPONSE: In Petitioner's pre-filing meeting with the DEEP, staff confirmed that dam safety consultation was not required.

39. With regard to earthwork required to develop the site, provide the following:

a) Will the site be graded? If so, in what areas?
b) What is the desired slope within the solar array areas?
c) Could the solar field areas be installed with minimal alteration to existing slopes?
d) If minimal alteration of slopes are proposed, can existing vegetation be maintained to provide ground cover during construction?
e) Estimate the amounts of cut and fill in cubic yards for the access road(s)
f) Estimate the amounts of cut and fill in cubic yards for solar field grading.
g) If there is excess cut, will this material be removed from the site property or deposited on the site property?

RESPONSE:

a) Yes, grading is required for project development, as detailed on Sheets GD-1 and GD-2 of the project plans.

b) The desired slope for solar arrays is 15% or less, in compliance with Appendix I.

c) The design of the solar array field is intended to minimize grading and maintain existing drainage patterns. It should be noted that some existing slopes, as depicted on the survey and plans, result from the property owner's ongoing operations and may consist of woodchip and soil stockpiles that are not permanent features and do not represent the permanent underlying grade of

the property. After the property owner's use ceases, proposed grading will consist of "smoothing" out slopes that exceed 15% within the solar array field and contouring grades to maintain the existing drainage patterns.

d) Existing vegetation is minimal due to the current use of the property; large portions include a mix of woodchip and soil stockpiles and exposed soils. As stated on page 20 of the Environmental Assessment, all exposed soils resulting from construction activities will be properly and promptly treated in accordance with the *2002 Connecticut Guidelines for Soil Erosion and Sediment Control*. The Petitioner proposes a phased erosion control plan. Phasing will be based on the timing needed for stabilization of specific Project areas that will be cleared and graded. Graded/disturbed areas within each proposed Project phase will be seeded and allowed to stabilize prior to construction moving on to the next phase. Any disturbed areas of the Site will be seeded with permanent Ernst Solar Farm Seed Mix. The phased erosion control plan and details are provided in Appendix A, *Project Plans,* Sheets EC-1 through EC-6.

e) The proposed access road will be installed at grade and thus require little or no grading. The access will consist of a small gravel area of approximately 1,220 square feet near the entrance at the southwest corner of the project. No interior access road is proposed.

f) Earthwork volumes are presented on the Title Sheet to the Plans (T-1). Net cut is calculated to be 9,177 cubic yards. However, it is anticipated that woodchip and soil stockpiles currently on the Site will be removed from the property by the owner as they continue to process materials on the site, resulting in a significantly lower net cut.

g) Suitable soils will be reused on the site as part of the grading plan. Excess cut is anticipated, and will be removed from the property and properly disposed of.

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

RESPONSE: The racking posts will be driven into the subgrade with a pile-driver. In the event significant areas of refusal are encountered pre-drilling for driven posts or use of screw piles may be considered. This pre-drilling process will consist of drilling down to the standard depth in the refusal location and then filling the pre-drilled hole with gravel to ensure stabilization.

41. Referencing page 20, the existing access road would be improved. How would the access road be improved, e.g. with gravel?

RESPONSE: The access will be improved with a small gravel area near the proposed gated entrance at the southwest corner of the project. The total area is approximately 1,220 sq-ft. The remainder of the access way to the project consists of an existing asphalt surface used by the current owner and requiring no improvements.

42. What is the minimum road width required for post-construction use?

RESPONSE: The minimum road width required for post-construction use is 12ft.

43. 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?

RESPONSE: A geotechnical study has not been performed however a test will be performed by the racking manufacturer during the next stage of mechanical engineering. This test will drive sample racking posts into the ground and measure compressive, lateral and uplift strength as exhibited by ground cover to the racking posts. This will determine required embedment depths. The conditions are assumed to be consistent with the terrain of this region yet suitable for the intended racking equipment which has been used broadly across Connecticut and New England.

Maintenance/Decommissioning

44. Referencing Attachment 4 of the Petition, Decommissioning Plan, page 2, Lodestar notes that the Project would interconnect to electrical distribution on Ryan Avenue rather than Raffia Road. Explain.

RESPONSE: This reference is a typographical error and should be updated to state Raffia Road.

45. Would replacement modules be stored on-site in the event solar panels are damaged or are not functioning properly? If so, where? How would damaged panels be detected?

RESPONSE: No, there are no plans to store modules on-site. When the modules initially arrive, they are inspected for any signs of damage. If any damage is found, it will be documented in compliance with the manufacturer's warranty procedure. Once the project is operational, damaged modules would be detected visibly, via annual thermal flight reports, through voltage/amperage testing during the annual O&M inspections, or during a visit in response to a perceived site issue being monitored 24/7/365 by our O&M provider.

46. Has the manufacturer of the proposed solar panels conducted Toxicity Characteristic Leaching Procedure (TCLP) testing to determine if the panels would be characterized as hazardous waste at the time of disposal under current regulatory criteria? If so, submit information that indicates the proposed solar modules would not be characterized as hazardous waste. If not, would the Petitioner agree to install solar panels that are not classified as hazardous waste through TCLP testing?

RESPONSE: Petitioner has confirmed that it will be utilizing ZNShine, Item/Model Number: ZXM7-SHLDD144 Module Size: 540 for the Project. Attached hereto as Exhibit 4 is a copy of the passing TCLP test results from the manufacturer, verifying that the panels comply with TCLP requirements along with the module specification sheet.

47. Referencing Attachment 3 of the Petition – Operations and Maintenance Plan, p. 4, under what circumstances would snow be removed? Describe snow removal methods.

RESPONSE: Snow removal requires a cost benefit analysis to compare the estimated lost production with the cost of removing snow and potential damage caused. Petitioner conducts this analysis on a storm by storm basis but has not chosen to clean snow off any sites in the first 9 years of operations in Connecticut, but let it melt off the tilted panels naturally.

48. Referencing Attachment 3 of the Petition – Operations and Maintenance Plan, p. 4, under what circumstances would the panels be washed? If applicable, what type of methods would be employed to clean the panels?

RESPONSE: As with the snow removal, washing panels requires a cost benefit analysis; however, due to the natural rainfall in CT, we do not require regular panel washing. This could change if there was ash from a forest fire or dust from nearby construction that significantly coated the panels and reduced production enough to require cleaning. For the cleaning procedure of a project this size, there are machines that mount to the module surface and clean them with water and soft bristles, power washers and squeegees for manned crews.

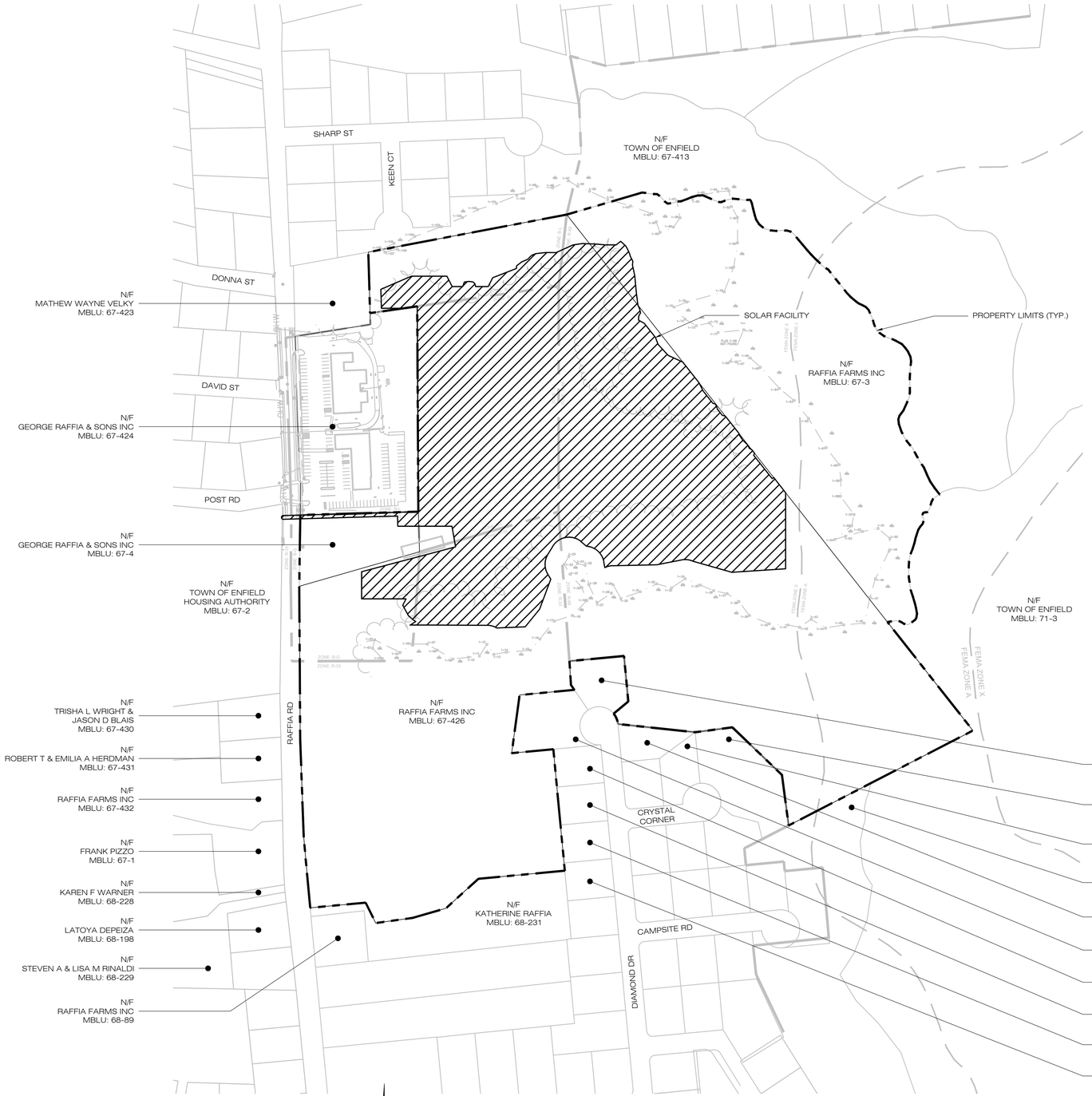
Respectfully submitted,

Petitioner
LSE HERCULES LLC

By: Carrie L. Ortolano
Jeffrey J. Macel, Manager
Carrie Larson Ortolano, General Counsel
% Lodestar Energy LLC
40 Tower Lane, Suite 201
Avon, CT 06001

EXHIBIT 1

PARCEL BOUNDARY MAP



LSE HERCULES LLC
40 TOWER LANE, SUITE 145
AVON, CT 06001

ALL-POINTS TECHNOLOGY CORPORATION

567 VAUXHALL STREET EXTENSION - SUITE 311
WATERFORD, CT 06385 PHONE: (860)-663-1697
WWW.ALLPOINTSTECH.COM FAX: (860)-663-0935

EXHIBIT

NO	DATE	REVISION
0	03/20/23	FOR REVIEW: KAM
1		
2		
3		
4		
5		
6		

DESIGN PROFESSIONAL OF RECORD

PROF: KEVIN A. MCCAFFERY, P.E.
COMP: ALL-POINTS TECHNOLOGY CORPORATION, P.C.
ADD: 567 VAUXHALL STREET EXTENSION - SUITE 311 WATERFORD, CT 06385

OWNER: RAFFIA FARMS INC & RAFFIA GEORGE + SONS INC
ADDRESS: 113 RAFFIA RD ENFIELD, CT 06082

RAFFIA RD SOLAR

SITE ADDRESS: 99 & 105 & 113 RAFFIA RD ENFIELD, CT

APT FILING NUMBER: CT606160

DRAWN BY: CH
DATE: 03/20/23
CHECKED BY: KAM

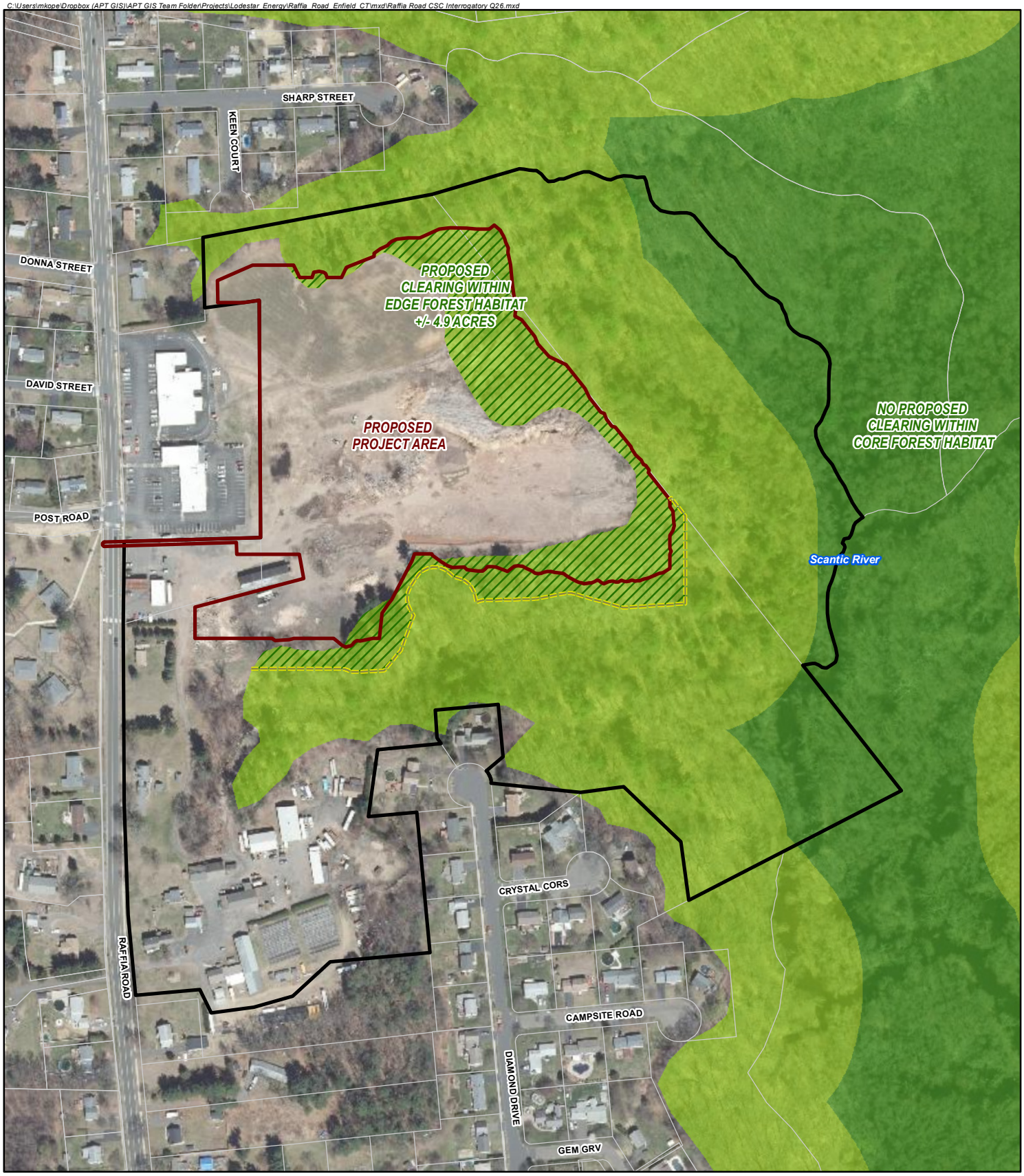
SHEET TITLE:

RESPONSE TO INTERROGATORY 5

SHEET NUMBER:

EX-1

EXHIBIT 2
EDGE FOREST MAP



Legend

- Site
- Project Area Limit of Disturbance
- Limit of Clearing
- Approximate Parcel Boundary
- Edge Forest Habitat To Be Cleared (+/- 4.9 Acres)

Forest Habitat Type

- Edge Forest Habitat
- Core Forest Habitat

Response to Connecticut Siting Council Interrogatory #26
Forested Habitat

Proposed Solar Energy Facility
Raffia Road
Enfield, Connecticut

N

300 150 0 300 Feet

Map Notes:
Base Map Source: 2019 Aerial Photograph (CTECO)
Map Scale: 1 inch = 300 feet
Map Date: March 2023

LODESTAR ENERGY
ALL-POINTS TECHNOLOGY CORPORATION

EXHIBIT 3
SHPO RESPONSE

January 18, 2023

Mr. David George
Heritage Consultants, LLC
830 Berlin Turnpike
Berlin, CT 06037
(sent only via email to dgeorge@heritage-consultants.com)

Subject: Archaeological Reconnaissance Survey of a Proposed Solar Facility
99-113 Raffia Road
Enfield, Connecticut

Dear Mr. George:

The State Historic Preservation Office (SHPO) has reviewed the report titled *Phase IB Cultural Resources Reconnaissance Survey of Archaeologically Sensitivity Areas Identified Within the Proposed Raffia Road Solar Facility at 99-113 Raffia Road in Enfield, Connecticut* prepared by Heritage Consultants, LLC (Heritage) for the referenced project. SHPO understands that the proposed project consists of the construction of a 10,162-module solar facility with associated infrastructure within a project area measuring approximately 14 acres in size. The proposed activities are under the jurisdiction of the Connecticut Siting Council and are subject to review by this office pursuant to the Connecticut Environmental Policy Act. The submitted report is comprehensive and meets the standards set forth in the *Environmental Review Primer for Connecticut's Archaeological Resources*

An archaeological sensitivity assessment of the project parcel was completed by Heritage in November of 2022 and identified a single area of moderate/high archaeological sensitivity (SA-1) within the project parcel. The archaeological reconnaissance survey of SA-1 was completed by Heritage in December of 2022. The survey included the excavation of shovel tests at 30 m intervals along transects placed 30 m apart. The initial testing strategy planned for the excavation of shovel tests at 15 m intervals along transects placed 15 m apart. However, the testing strategy was amended in the field when it became apparent that the SA-1 lacked intact subsoil strata. The field effort resulted in the completion of 29 shovel tests throughout SA-1 with one shovel test positive for cultural material. Recovered cultural material consisted of a single machine-cut nail. Heritage determined that the archaeological deposits are not eligible for inclusion on the National Register of Historic Places. Based on the information provided to our office, SHPO concurs with the findings of the report that no additional archeological investigations are warranted and that no historic properties will be affected by the proposed project.

SHPO appreciates the cooperation of all interested parties in the professional management of Connecticut's archeological resources. This letter updates and supersedes all previous correspondence regarding the proposed project. Do not hesitate to contact Cory Atkinson, Staff Archaeologist and Environmental Reviewer, for additional information at (860) 500-2248 or cory.atkinson@ct.gov.

Sincerely,

Jonathan Kinney

Jonathan Kinney
State Historic Preservation Officer

EXHIBIT 4

MODULE TCLP TEST RESULTS

TÜV Rheinland (Shanghai) Co., Ltd.

ZNshine Solar Module TCLP Report

Commissioned Test

Client: ZNSHINE PV-TECH Co., Ltd.

Report No.: CN227VOX 001

September 2022

TÜV Rheinland (Shanghai) Co., Ltd.

B1-13F No. 177, Lane 777 West Guangzhong Road
Jing'an District, Shanghai, P.R.China

www.tuv.com/solar

Please contact: Allen Qian

Phone: +86 21 6081 4897

Email: Allen.Qian@tuv.com

Rev No.	Rev. Date	Content/Changes	Prepared/revised	Checked/released
1	30 September 2022	Formal Report	Allen Qian	Shangshang Ju

X

Inspector

X

Reviewer

Disclaimer

TÜV Rheinland has prepared this document solely for the project referred to in this report on behalf of the Client based on the hereto related appointment letter ("Agreement"). This report is, in all cases, subject to the terms and conditions set forth herein and in the Agreement, in particular exclusions on liability.

This report is a review covering technical aspects of the project based on information provided by the Client. It shall not be relied upon as an alternative to a legal or financial assessment particularly since it is not intended to constitute any guarantee of the financial performance of the project. Also, the report should not be relied upon or used for any other project without an independent check being carried out as to its suitability. Any other use requires the prior written consent of TÜV Rheinland. Publication or dissemination of extracts, appraisals or any other revision and adaptation hereof, in particular for advertising purposes, requires the prior written consent of TÜV Rheinland.

TÜV Rheinland has assumed and relied upon the accuracy and completeness of the information obtained from Client for the purpose of rendering the report. No representation or warranty, express or implied, is or will be made in relation to the accuracy or completeness of such Client information or that the use of this report will lead to any particular outcome or result. TÜV Rheinland accepts no responsibility or liability for the consequences of this report being used for a purpose other than the purposes for which it was commissioned and TÜV Rheinland accepts no responsibility or liability for this report to any party other than the Client as set forth in the Agreement.

Client:	ZNSHINE PV-TECH Co., Ltd.
Quotation No.:	245782345
Order No.:	244446750
Order Date:	31.08.2022

List of Contents

List of Abbreviations

ND: Not detected

μg/L: Microgram per liter

mg/L: Milligrams per liter

TCLP: Toxicity Characteristic Leaching Procedure

TUV: TÜV Rheinland (Shanghai) Co., Ltd.

J-Box: Junction-Box

1. Executive Summary

General Information	
Client	ZNSHINE PV-TECH Co., Ltd.
Project Name	ZNshine Solar Module TCLP
Product Specification	ZNshine Solar Photovoltaic Module: ZXM7-SHLDD144-XXX/M, ZXM6-NHLDD144-XXX/M
Detail of sample	1. A section of the laminate, including the glass superstrate and substrate (top and bottom), the encapsulant, the cell and the interconnect wires (aka ribbons) 2. A section of the aluminum frame with the adhesive used to adhere the frame to the laminate 3. A complete junction box assembly, including the adhesive used to adhere the assembly to the substrate, the junction box, diodes, cables, connectors and potting compound.
Test Details	
Scope of work	TCLP
Test Period	22.09.2022 - 28.09.2022
Laboratory	TÜV Building III, No.177, Lane 777, West Guangzhong Road Jingan District, Shanghai, China
Reference Standards	For Arsenic, Mercury, Selenium: HJ/T 300-2007; HJ694-2014
	For Barium, Cadmium, Chromium, Lead, Silver: HJ/T 300-2007; HJ776-2015
Result	1. Arsenic was found in Laminate, Frame, J-box. 2. Barium was found in frame. 3. Mercury was found in J-box. 4. Other elements were not found. Note: Refer to table 1 for data Detail in next page.

2. Results

Table 1:

Metal	Results			Threshold	Unit
	Laminate	Frame	J-box		
Arsenic	1.0	1.4	1.0	0.3	μg/L
Barium	ND	0.03	ND	0.01	mg/L
Cadmium	ND	ND	ND	0.05	mg/L
Chromium	ND	ND	ND	0.03	mg/L
Lead	ND	ND	ND	0.1	mg/L
Mercury	ND	ND	0.08	0.04	μg/L
Selenium	ND	ND	ND	0.4	μg/L
Silver	ND	ND	ND	0.03	mg/L

Remark: ND: Not detected.

Reference Standards: For Arsenic, Mercury, Selenium: HJ/T 300-2007; HJ694-2014

Reference Standards: For Barium, Cadmium, Chromium, Lead, Silver: HJ/T 300-2007; HJ776-2015

3. Equipment List

Table 2:

Equipment name	Equipment Type	Equipment number
Atomic fluorescence photometer	AFS8510	F-004-01
Inductively coupled plasma emission spectrometer	Icap6000	Icap6000

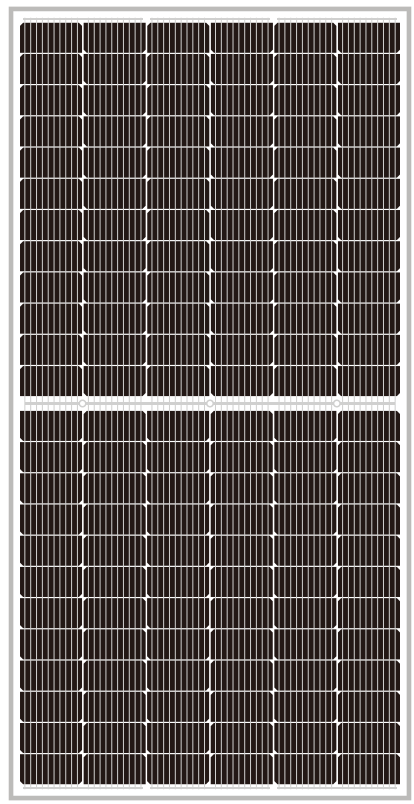
End of the report

ZXM7-SHLDD144 Series

ZNSHINESOLAR

Znshinesolar 10BB HALF-CELL Bifacial Light-Weight
Double Glass Monocrystalline PERC PV Module

525W | 530W | 535W | 540W | 545W | 550W



Excellent cells efficiency

MBB technology decreases the distance between busbar and finger grid line which is benefit to power increase.

Better Weak Illumination Response

More power output in weak light condition, such as haze, cloudy, and early morning.

Anti PID

Ensured PID resistance through the quality control of cell manufacturing process and raw materials.

Adapt To Harsh Outdoor Environment

Resistant to harsh environments such as salt, ammonia, sand, high temperature and high humidity environment.

TIER 1

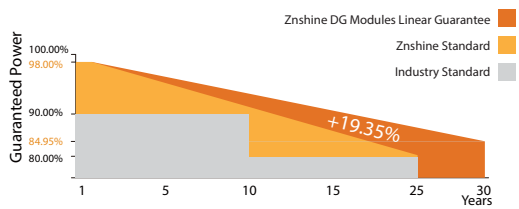
Global,Tier 1 bankable brand,with independently certified state-of-the-art automated manufacturing.

Excellent Quality Managerment System

Warranted reliability and stringent quality assurances well beyond certified requirements.

Bifacial Technology

Up to 25% additional power gain from back side depending on albedo.



12 years product guarantee
30 years output guarantee

0.45% annual degradation
over 30 years

IEC61215/IEC61730/IEC61701/IEC62716/UL61730

ISO 9001: Quality Management System

ISO 14001: Environmental Management System

ISO45001: Occupational Health and Safety Management System

Founded in 1988, ZNShine solar is a world's leading high-tech PV module manufacturer.With the state-of-the-art production lines, the company boasts module capacity of 6GW. Bloomberg has listed ZNShine as a global Tier 1 PV module maker. Today Znshine has distributed its sales to more than 60 countries around the globe.

www.znshinesolar.com

ZXM7-SHLDD144 Series

Znshinesolar 10BB HALF-CELL Bifacial Light-Weight Double Glass Monocrystalline PERC PV Module

ZNSHINESOLAR

ELECTRICAL CHARACTERISTICS | STC*

Nominal Power Watt Pmax(W)*	525	530	535	540	545	550
Power Output Tolerance Pmax(%)	0~+3	0~+3	0~+3	0~+3	0~+3	0~+3
Maximum Power Voltage Vmp(V)	40.90	41.10	41.30	41.50	41.70	41.90
Maximum Power Current Imp(A)	12.85	12.91	12.96	13.02	13.07	13.13
Open Circuit Voltage Voc(V)	49.20	49.40	49.60	49.80	50.00	50.20
Short Circuit Current Isc(A)	13.59	13.65	13.71	13.77	13.83	13.89
Module Efficiency (%)	20.32	20.52	20.71	20.90	21.10	21.29

*STC (Standard Test Condition): Irradiance 1000W/m², Module Temperature 25℃, AM 1.5
*Measuring tolerance: ±3%

ELECTRICAL CHARACTERISTICS | NMOT*

Maximum Power Pmax(Wp)	392.70	396.40	399.90	403.60	406.80	410.80
Maximum Power Voltage Vmpp(V)	38.00	38.20	38.40	38.50	38.80	38.90
Maximum Power Current Impp(A)	10.33	10.38	10.42	10.47	10.49	10.56
Open Circuit Voltage Voc(V)	46.00	46.20	46.30	46.50	46.70	46.90
Short Circuit Current Isc(A)	10.98	11.02	11.07	11.12	11.17	11.22

*NMOT(Nominal module operating temperature):Irradiance 800W/m²,Ambient Temperature 20℃,AM 1.5,Wind Speed 1m/s

ELECTRICAL CHARACTERISTICS WITH 25% REAR SIDE POWER GAIN

Front power Pmax/W	525	530	535	540	545	550
Total power Pmax/W	656	663	669	675	681	688
Vmp/V(Total)	41.00	41.20	41.40	41.60	41.80	42.00
Imp/A(Total)	16.01	16.08	16.15	16.23	16.30	16.37
Voc/V(Total)	49.30	49.50	49.70	49.90	50.10	50.30
Isc/A(Total)	16.95	17.02	17.10	17.17	17.25	17.32

MECHANICAL DATA

Solar cells	Mono PERC
Cells orientation	144（6×24）
Module dimension	2278×1134×30 mm(With Frame)
Weight	33.5 kg
Glass	2.0 mm+2.0mm, High Transmission, AR Coated Heat Strengthened Glass
Junction box	IP 68，3 diodes
Cables	4 mm² ,350 mm
Connectors	MC4-compatible

TEMPERATURE RATINGS

NMOT	44℃ ±2℃
Temperature coefficient of Pmax	-0.35%/℃
Temperature coefficient of Voc	-0.29%/℃
Temperature coefficient of Isc	0.05%/℃
Refer.Bifacial Factor	70±5%

WORKING CONDITIONS

Maximum system voltage	1500 V DC
Operating temperature	-40℃~+85℃
Maximum series fuse	30 A
Maximum load(snow/wind)	5400 Pa / 2400 Pa

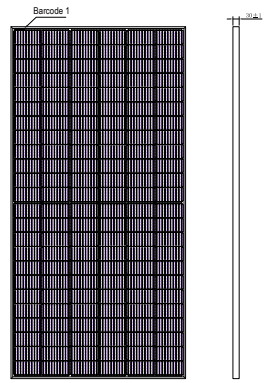
*Do not connect Fuse in Combiner Box with two or more strings in parallel connection
*Remark:Electrical data in this catalog do not refer to a single module and they are not part of the offer.They only serve for comparison among different module types.

PACKAGING CONFIGURATION

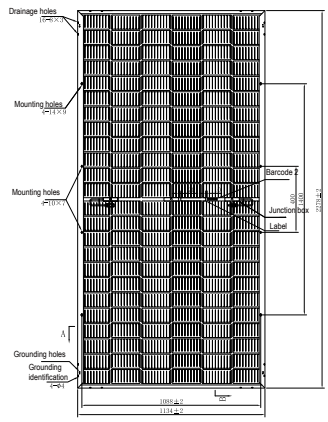
Piece/Box	36
Piece/Container(40'HQ)	720
Piece/Container(with additional small package)	/

*Please be kindly advised that PV modules should be handled and installed by qualified people who have professional skills and please carefully read the safety and installation instructions before using our PV modules.

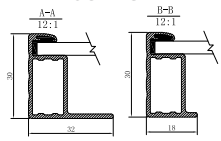
DIMENSIONS(MM)



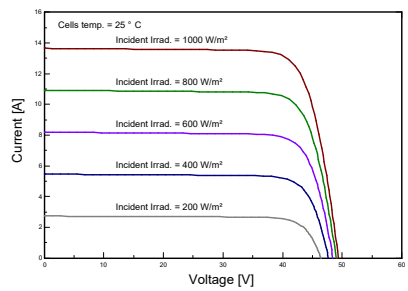
Front View



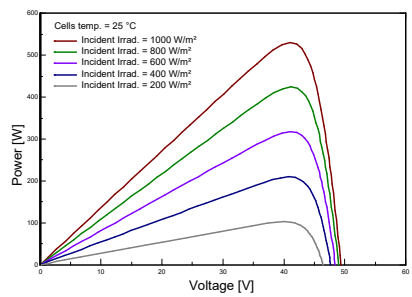
Back View



I-V CURVES OF PV MODULE(530W)



P-V CURVES OF PV MODULE(530W)



Add：1#, Zhixi Industrial Zone，JintanJiangsu 213251，P.R. China Tel：+86 519 6822 0233