

U.S. DEPARTMENT OF ENERGY
OFFICE OF ENERGY EFFICIENCY AND RENEWABLE ENERGY
NEPA DETERMINATION



RECIPIENT: Silfab Solar Wa Inc

STATE: WA

PROJECT TITLE : Transitioning Sunflex Solar's Sunfoil Back-Contact Modules to High-Volume Manufacturing

| Funding Opportunity Announcement Number | Procurement Instrument Number | NEPA Control Number | CID Number |
|---|-------------------------------|---------------------|------------|
| DE-FOA-0002437 | DE-EE0009639 | GFO-0009639-001 | |

Based on my review of the information concerning the proposed action, as NEPA Compliance Officer (authorized under DOE Policy 451.1), I have made the following determination:

CX, EA, EIS APPENDIX AND NUMBER:

Description:

- | | |
|---|--|
| A9 Information gathering, analysis, and dissemination | Information gathering (including, but not limited to, literature surveys, inventories, site visits, and audits), data analysis (including, but not limited to, computer modeling), document preparation (including, but not limited to, conceptual design, feasibility studies, and analytical energy supply and demand studies), and information dissemination (including, but not limited to, document publication and distribution, and classroom training and informational programs), but not including site characterization or environmental monitoring. (See also B3.1 of appendix B to this subpart.) |
| B3.6 Small-scale research and development, laboratory operations, and pilot projects | Siting, construction, modification, operation, and decommissioning of facilities for smallscale research and development projects; conventional laboratory operations (such as preparation of chemical standards and sample analysis); and small-scale pilot projects (generally less than 2 years) frequently conducted to verify a concept before demonstration actions, provided that construction or modification would be within or contiguous to a previously disturbed or developed area (where active utilities and currently used roads are readily accessible). Not included in this category are demonstration actions, meaning actions that are undertaken at a scale to show whether a technology would be viable on a larger scale and suitable for commercial deployment. |

Rationale for determination:

The U.S. Department of Energy (DOE) is proposing to provide funding to Silfab Solar WA Inc to design, develop, and test a new manufacturing process for solar photovoltaic modules. An existing high-performance back-contact silicon module technology would be scaled up for use on full-size residential PV modules and the process and supply chain to manufacture these modules at high volume would be developed. The project would be completed over two Budget Periods (BPs) with a Go/No-Go decision point between each BP. Work in BP1 would determine the site at which equipment fabrication during BP2 would occur. As such, this NEPA Determination only applies to BP1.

Proposed project activities in BP1 would include product design and development of new manufacturing equipment, reliability testing, and supply chain development. Module drawings, manufacturing tolerances, and other specifications would be developed to create test samples, mini-modules, and full-scale prototypes. The supply chain would be developed by engaging with suppliers to provide quotes, designs, and multiple iterations of samples, as well as to develop manufacturing equipment suitable for executing high-volume manufacturing. A complete process flow and equipment layout would be designed capable of achieving the target manufacturing throughput.

Development would occur at Silfab Solar in Bellingham, WA and Sunflex Solar in Tempe, AZ. Silfab Solar would design, develop, and fabricate photovoltaic modules and manufacturing equipment, producing approximately 2000 solar photovoltaic modules. Partially processed laminates produced at Silfab would be sent to Sunflex Solar (working out of the MacroTechnology Works center managed by Arizona State University) for initial laser welding evaluations. Sunflex Solar would perform the layup, lamination, laser welding, and characterization of prototype modules and would construct approximately 50 small prototypes. Characterization and environmental stress testing of full-scale prototype modules would be completed at contractors' sites (PVEL in Berkely, CA; Renewable Energy Test Center in Fremont, CA; and Element Materials Technology Canada, Inc in Mississauga, ON). An additional contractor, Eurotron in Bleskensgraaf, Netherlands, would fabricate full-size prototype solar modules.

No changes in the use, mission, or operation of existing facilities would be required as part of this project and no

additional permits would be required in order to conduct any of the work activities.

Project activities would involve the use of manufacturing equipment, various physical and electrical safety hazards, and work at elevated temperatures. Any associated risks would be mitigated through adherence to established health and safety policies and procedures. Protocols would include the use of personal protective equipment, employee training, and regular testing of safety devices. All waste products would be disposed of by licensed waste management service providers. Silfab Solar and its project partners would observe all applicable Federal, state, and local health, safety, and environmental regulations.

NEPA PROVISION

DOE has made a conditional NEPA determination.

The NEPA Determination applies to the following Topic Areas, Budget Periods, and/or tasks:

Budget Period 1: all tasks

The NEPA Determination does not apply to the following Topic Area, Budget Periods, and/or tasks:

Budget Period 2: all tasks

Notes:

Solar Energy Technologies Office

This NEPA determination does require a tailored NEPA provision.

Review completed by Shaina Aguilar on 10/28/21.

FOR CATEGORICAL EXCLUSION DETERMINATIONS

The proposed action (or the part of the proposal defined in the Rationale above) fits within a class of actions that is listed in Appendix A or B to 10 CFR Part 1021, Subpart D. To fit within the classes of actions listed in 10 CFR Part 1021, Subpart D, Appendix B, a proposal must be one that would not: (1) threaten a violation of applicable statutory, regulatory, or permit requirements for environment, safety, and health, or similar requirements of DOE or Executive Orders; (2) require siting and construction or major expansion of waste storage, disposal, recovery, or treatment facilities (including incinerators), but the proposal may include categorically excluded waste storage, disposal, recovery, or treatment actions or facilities; (3) disturb hazardous substances, pollutants, contaminants, or CERCLA-excluded petroleum and natural gas products that preexist in the environment such that there would be uncontrolled or unpermitted releases; (4) have the potential to cause significant impacts on environmentally sensitive resources, including, but not limited to, those listed in paragraph B(4) of 10 CFR Part 1021, Subpart D, Appendix B; (5) involve genetically engineered organisms, synthetic biology, governmentally designated noxious weeds, or invasive species, unless the proposed activity would be contained or confined in a manner designed and operated to prevent unauthorized release into the environment and conducted in accordance with applicable requirements, such as those listed in paragraph B(5) of 10 CFR Part 1021, Subpart D, Appendix B.

There are no extraordinary circumstances related to the proposed action that may affect the significance of the environmental effects of the proposal.

The proposed action has not been segmented to meet the definition of a categorical exclusion. This proposal is not connected to other actions with potentially significant impacts (40 CFR 1508.25(a)(1)), is not related to other actions with individually insignificant but cumulatively significant impacts (40 CFR 1508.27(b)(7)), and is not precluded by 40 CFR 1506.1 or 10 CFR 1021.211 concerning limitations on actions during preparation of an environmental impact statement.

DOE has determined that work to be carried out outside of the United States, its territories and possessions is exempt from further review pursuant to Section 5.1.1 of the DOE Final Guidelines for Implementation of Executive Order 12114; "Environmental Effects Abroad of Major Federal Actions."

A portion of the proposed action is categorically excluded from further NEPA review. The NEPA Provision identifies Topic Areas, Budget Periods, tasks, and/or subtasks that are subject to additional NEPA review.

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature: _____

 Electronically Signed By: **Kristin Kerwin**

NEPA Compliance Officer

Date: 10/28/2021

FIELD OFFICE MANAGER DETERMINATION

- Field Office Manager review not required
- Field Office Manager review required

BASED ON MY REVIEW I CONCUR WITH THE DETERMINATION OF THE NCO :

Field Office Manager's Signature: _____

Field Office Manager

Date: _____