

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



RECIPIENT: Fraunhofer USA Inc., Center for Sustainable Energy Systems

STATE: MA

PROJECT TITLE : Plug & Play Solar PV for American Homes

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0000653	DE-EE0006035-004	GFO-0006035-003	

Based on my review of the information concerning the proposed action, as NEPA Compliance Officer (authorized under DOE Order 451.1A), 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 federal funding to the Fraunhofer USA Inc., Center for Sustainable Energy Systems (Fraunhofer) to research, develop and design ways to reduce the installed cost of residential solar photovoltaic (PV) systems by developing a residential "Plug and Play" solar PV system. Funding would be used for testing, validation and technical and economic analysis of a residential "Plug and Play" solar PV system.

Two previous NEPA determinations were made for the project which is divided into 5 Budget Periods (BPs). The determination for BP 1 (GFO-0006035-001 CX A9, B3.6. 1/28/2013) activities applied to information gathering, analysis, computer modeling, materials testing, preliminary prototype "Plug and Play" solar PV system design, and prototype "Plug and Play" solar PV system fabrication and testing. The second determination (GFO-0006035-002 CX A9, B3.6, B5.16 6/05/2013) applied to the addition of a new partner, 3L Power, to perform electrical bench testing and for the demonstration of solar PV at a solar test facility.

This NEPA determination applies to BP 2 activities only. A Go/No Go decision would be made between Budget Periods 2 and 3. At that time, the recipient would be required to submit an application for Budget Period 3 activities, including further NEPA documentation.

During Budget Period 2, technical and economic analysis on "Plug and Play" solar PV systems will be performed to ensure that module candidates successfully pass fabrication, testing and installation requirements during tasks 1-7.

- Task 1: Ensure that project management meets all DOE program management requirements.
- Task 2: Ensure the project is on track towards a validated "Plug and Play" electrical installation.
- Task 3: Ensure "Plug and Play" roof mounting is on track towards a validated mounting method.
- Task 4: Ensure at least one of the light-weight "Plug and Play" module candidates has successfully passed critical qualification and qualification plus testing.
- Task 5: Ensure at least one participating utility has started to integrate a remote commissioning and registration process into their business processes as part of a pilot and has participated in the BP2 demonstration. Perform technical and economic analysis indicating that the project is on track towards enabling automatic permitting, inspection, and interconnection.
- Task 6: Ensure "Plug and Play" PV draft specifications and standards have been developed, with at least 3 manufacturers supporting the effort.

- Task 7: Ensure year 2 "Plug and Play" PV system is fully functional and capable of supporting and validating the design analysis with goals of requiring fewer than ten man-hours of labor and the capability of the system to be delivered, installed and commissioned on the same day by someone without prior PV experience.

To accomplish the proposed activities, Fraunhofer partnered with Lumeta Solar; Petra Solar; Schletter Inc.; the City of Boston, Massachusetts; the Town of Rutland, Vermont; Green Mountain Power; the Center for Environmental Innovation in Roofing; Vermont Law School; Tufts University; and Sandia National Laboratories. Work would be completed at the following laboratories:

- 3L Power, LLC 24 Crescent Street Suite 405 Waltham, Massachusetts, 02453
- Fraunhofer: 5 Channel Center Street Boston, Massachusetts, 02210
- Fraunhofer's CFV Solar Laboratory facility: 5600-A University Blvd. SE, Albuquerque, New Mexico, 87106
- Infinite Invention NextFab Studio: 2025 Washington Avenue Philadelphia, Pennsylvania, 19146
- Lumeta Fremont Technology Park: 46453 Landing Parkway, Fremont, California 94538
- D2 Solar: 2369 Bering Drive San Jose, California, 95131
- Sandia National Laboratories: 1515 Eubank SE Albuquerque, New Mexico, 87123
- Tufts University Halligan Hall: 135B College Ave Medford/Somerville Massachusetts, 02155
- Volt Server 42 Ladd Street East Greenwich, Rhode Island, 02818
- Center for Environmental Innovation in Roofing, 816 Connecticut Avenue NW, Fifth Floor, Washington D.C., 20006
- Vermont Law School, 164 Chelsea Street, PO Box 96, South Royalton Vermont 05068

All work completed at DOE National Laboratories (Sandia) may be subject to additional NEPA review by the appropriate DOE NEPA Compliance Officer.

Fraunhofer and their partners have each completed an R&D questionnaire addressing the protocols for laboratory, facility and site safety, risk management and waste disposal. The laboratories and facilities comply with standard safety procedures and all processes and procedures are monitored by the Environmental Health and Safety staff. The laboratories and facilities have all applicable permits in place, and would not need additional permits for the proposed activities. All handling and disposal of gases, chemicals, wastes and liquid effluents comply with appropriate regulations. The laboratories and facilities are currently used for activities similar to the proposed activities.

Based on review of the project information and the above analysis, DOE has determined the Budget Period 2 research, development and testing activities associated with development of a "Plug and Play" solar PV system would not have a significant individual or cumulative impact to human health and/or environment. DOE has determined the proposed project is consistent with actions contained in DOE categorical exclusion A9 "information gathering, analysis and dissemination" and B3.6 "small-scale research and development, laboratory operations and pilot projects" and is categorically excluded from further NEPA review.

NEPA PROVISION

DOE has made a conditional NEPA determination for this award, and funding for certain tasks under this award is contingent upon the final NEPA determination.

Insert the following language in the award:

You are restricted from taking any action using federal funds, which would have an adverse affect on the environment or limit the choice of reasonable alternatives prior to DOE/NNSA providing either a NEPA clearance or a final NEPA decision regarding the project.

Prohibited actions include:
Budget Period 3-5 Activities.

This restriction does not preclude you from:
Budget Period 1 and 2 Activities.

If you move forward with activities that are not authorized for federal funding by the DOE Contracting Officer in advance of the final NEPA decision, you are doing so at risk of not receiving federal funding and such costs may not be recognized as allowable cost share.

Note to Specialist :

This NEPA determination requires a tailored NEPA provision.

May Mock 4/1/2014

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature: _____
Electronically Signed By: Kristin Kerwin
NEPA Compliance Officer *K Kerwin* Date: 4/1/2014

FIELD OFFICE MANAGER DETERMINATION

Field Office Manager review required

NCO REQUESTS THE FIELD OFFICE MANAGER REVIEW FOR THE FOLLOWING REASON:

- Proposed action fits within a categorical exclusion but involves a high profile or controversial issue that warrants Field Office Manager's attention.
- Proposed action falls within an EA or EIS category and therefore requires Field Office Manager's review and determination.

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

Field Office Manager's Signature: _____ Date: _____
Field Office Manager