

PMC-ND
(1.08.09.13)

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



RECIPIENT: WattGlass, LLC

STATE: AR

PROJECT TITLE : High-Performance Self-Cleaning, Antireflective, and Anti-fog Coating for PV Glass to Increase Module Output and Decrease BOS Costs

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
de-ee0001400	DE-EE0007582	GFO-0007582-001	GO7582

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. |
| B3.15 Small-scale indoor research and development projects using nanoscale materials | Siting, construction, modification, operation, and decommissioning of facilities for indoor small-scale research and development projects and small-scale pilot projects using nanoscale materials in accordance with applicable requirements (such as engineering, worker safety, procedural, and administrative regulations) necessary to ensure the containment of any hazardous materials. Construction and modification activities would be within or contiguous to a previously disturbed or developed area (where active utilities and currently used roads are readily accessible). |

Rationale for determination:

The U.S. Department of Energy (DOE) is proposing to provide federal funding to WattGlass, LLC to develop, produce, and test solar photovoltaic (PV) modules utilizing glass panels with an advanced antireflective coating (ARC).

Proposed project activities would include: design, development, laboratory testing, and characterization of the ARC and coating equipment; production of roll-coated module glass; fabrication of modules; identification of field test sites including data collection and infrastructure surveys; installation and monitoring of test arrays; and business development and project management tasks.

Design, development, lab-scale testing, and glass production would take place at the office and dedicated laboratory space of WattGlass in Fayetteville, AR. The facility in which lab work would occur is purpose-built for the type of activities being proposed, and would not need additional permits for the proposed activities. Module fabrication would be performed on existing production lines at various industrial PV panel manufacturing locations. No change in the use, mission or operation of existing facilities would arise out of this effort.

The proposed project involves the use and handling of various chemicals that are required to formulate the ARC solution, including nanoparticle suspensions, acids, bases, and solvents. All such work would occur in a controlled laboratory environment at WattGlass. The nanoscale materials that would be used are silica colloids in liquid form, which pose minimal risk. The facility is properly equipped to manage hazardous materials and regularly audited by University of Arkansas Environmental Health and Safety (EH&S) officers to insure regulatory compliance. University EH&S would collect the approximately 50 gallons of hazardous waste generated by the proposed activities and dispose of it in accordance with all federal and state environmental guidelines.

Task 6 of the proposed project includes outdoor installation of solar PV arrays at a minimum of three sites with varying

climates to field test the performance of coated panels and monitor power output. The preceding Subtask 5.4 would be delivery of modules to each site. Each array would contain 20 kW (approximately 80 panels) and would occupy less than ¼ of an acre.

One of the proposed test sites may be located at the WattGlass facility on the University of Arkansas campus, where the modules would either be roof mounted or ground mounted in a space adjacent to the building. Currently, there is not enough information available for DOE to conduct a meaningful review of this testing location. Further NEPA review of this location is required if it is selected as a test location.

DOE Regional Test Centers may also be selected as test sites. There are 5 DOE RTCs which operate as both research and testing centers used to demonstrate how a technology performs in a particular climate. The RTCs are managed by Sandia National Laboratories and the National Renewable Energy Laboratory. Any work proposed to be conducted at a DOE laboratory may be subject to additional NEPA review by the cognizant DOE NEPA Compliance Officer for the specific DOE laboratory prior to initiating such work. Further, any work conducted at a DOE laboratory must meet the laboratory's health and safety requirements. No further NEPA review for testing at any of the 5 DOE RTCs is required by the Office of Energy Efficiency and Renewable Energy NEPA Division.

Additional test sites yet to be identified may be selected by WattGlass. Since these potential test sites have not been identified there is not enough information available for DOE to conduct a meaningful review of these locations. Further NEPA review of these locations is required.

Based on the review of the proposal, DOE has determined the following tasks: Task 1, Task 2, Task 3, Task 4, Subtasks 5.1-5.3, Task 7, and Task 8 fit within the class of action(s) and the integral elements of Appendix B to Subpart D of 10 CFR 1021 outlined in the DOE categorical exclusion(s) selected above. DOE has also determined that: (1) there are no extraordinary circumstances (as defined by 10 CFR 1021.410(2)) related to the proposal that may affect the significance of the environmental effects of the proposal; (2) the proposal has not been segmented to meet the definition of a categorical exclusion; and (3) the proposal is not connected to other actions with potentially significant impacts, related to other proposals with cumulatively significant actions, or an improper interim action. Task 1, Task 2, Task 3, Task 4, Subtasks 5.1-5.3, Task 7, and Task 8 are 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:

Subtask 5.4: Delivery of Modules to Test Sites other than DOE Regional Test Centers

Task 6: Installation and Monitoring of Test Arrays at locations other than DOE Regional Test Centers

This restriction does not preclude you from:

Task 1: Lab Scale Coating Performance

Task 2: Characterization of Coating Solution Shelf Life

Task 3: Fabrication of Modules for UL/IEC Certifications

Task 4: Fabrication and Delivery of Coated Glass to Module Manufacturers

Subtask 5.1: Fabrication of Modules

Subtask 5.2: Flash Testing of Modules

Subtask 5.3: Identification of Test Sites

Subtask 5.4: Delivery of Modules to DOE Regional Test Centers

Task 6: Installation and Monitoring of Test Arrays at DOE Regional Test Centers

Task 7: Business Development

Task 8: Project Management

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.

Insert the following language in the award:

You are required to:

The recipient is required to submit information on each non-DOE Regional Test Center location selected for installation and monitoring of test arrays for additional NEPA review prior to work initiation.

Any work proposed to be conducted at a DOE laboratory may be subject to additional NEPA review by the cognizant DOE NEPA Compliance Officer for the specific DOE laboratory prior to initiating such work. Further, any work conducted at a DOE laboratory must meet the laboratory's health and safety requirements.

Note to Specialist :

Solar Energy Technologies Office
http://energy.gov/eere/renewables/solar
This NEPA determination requires a tailored NEPA Provision.
NEPA review completed by Whitney Doss, 08/22/2016

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature: _____  Date: 8/22/2016
Electronically Signed By Lori Gray
NEPA Compliance Officer

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

