

PMC-ND  
(1.08.09.13)

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



**RECIPIENT:** Osazda Energy, LLC

**STATE:** NM

**PROJECT TITLE:** Towards Commercialization of Low-Cost, Crack-Tolerant, Screen-Printable Metallization by Full-Size Module Testing and Field Characterization

<b>Funding Opportunity Announcement Number</b>	<b>Procurement Instrument Number</b>	<b>NEPA Control Number</b>	<b>CID Number</b>
DE-FOA-0002064	DE-EE0009013	GFO-0009013-001	

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:

<b>A9 Information gathering, analysis, and dissemination</b>	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.)
<b>B3.15 Small-scale indoor research and development projects using nanoscale materials</b>	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).
<b>B3.6 Small-scale research and development, laboratory operations, and pilot projects</b>	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 Osazda Energy, LLC to conduct field-relevant, module-level analysis and qualification of advanced composite metallization aimed at prolonging the lifetime of solar photovoltaic (PV) modules by electrically bridging the cell cracks that appear due to thermo-mechanical stress and weather elements.

The project would be comprised of two Budget Periods. Proposed tasks would advance in scope from basic solar cell engineering and sample characterization to the fabrication and performance testing of full-sized PV modules. The project would culminate with the field testing of prototypes that underwent stress testing and module certification. Activities would be carried out by Osazda along with multiple subrecipients, as follows.

Osazda would conduct initial process optimization, engineering, and testing activities at their specialized corporate facility as well as at the University of New Mexico (UM) Centennial Engineering Center (both located in Albuquerque, NM). Characterization of the developed materials would also occur at UM facilities (Dept. of Chemical & Biological Engineering). Solar cell samples would be fabricated at the University of North Carolina (UNC Dept. of Electrical & Computer Engineering; Charlotte, NC). Full-sized modules would be fabricated by D2Solar (San Jose, CA). Module certification and a series of indoor/outdoor performance tests would occur at CFV Solar Test Laboratory (Albuquerque, NM), which is equipped with purpose-built testbeds for the temporary installation and field testing of equipment. Additional technique development and module characterization activities would be performed by Sandia National Laboratories (SNL; Albuquerque, NM).

All project locations are established corporate, university, or federal facilities that were designed for the type of research being proposed; therefore, no modifications or new permits, additional licenses and/or authorizations would be necessary. No change in the use, mission or operation of existing facilities would arise out of this effort. Any work proposed to be conducted at a DOE laboratory may be subject to additional NEPA review by the cognizant DOE



Field Office Manager's Signature: \_\_\_\_\_  
Field Office Manager

Date: \_\_\_\_\_