

PMC-EF2a

(20402)

**U.S. DEPARTMENT OF ENERGY  
EERE PROJECT MANAGEMENT CENTER  
NEPA DETERMINATION**



RECIPIENT: Delphi

STATE: CO

**PROJECT TITLE :** Cascaded Micro Inverter PV System for Reduced Costs

<b>Funding Opportunity Announcement Number</b>	<b>Procurement Instrument Number</b>	<b>NEPA Control Number</b>	<b>CID Number</b>
DE-FOA-0000479	DE-EE0005342	GFO-0005342-001	EE5342

**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.

## Rational for determination:

DOE is proposing to provide federal funding to Delphi Corporation (Delphi) to develop and demonstrate a novel cascaded photovoltaic (PV) inverter architecture using advanced components, which reduce the cost and improve the performance of medium- and large-sized PV systems.

The proposed project would be conducted in three Phases. This NEPA determination applies only to Phase 1. Phase 2 and 3 will require additional NEPA review.

Phase 1 would involve evaluating design options for the inverter system. This would entail defining the system requirements, developing a bill of materials, evaluating failure modes and performing a reliability analysis. Based on this design work, the team would build and test a bench scale prototype (3-phase 3 KW cascaded inverter PV system).

All research and prototype fabrication would be conducted in a laboratory environment at the University of Tennessee (UT) and Global Power Electronics (GPE).

The converter would be assembled and tested at the Science and Engineering Facility (SERF) at UT (1331 Circle Park Drive, Knoxville, Tennessee 37916). UT has completed an R&D questionnaire addressing the protocols for laboratory safety, risk management, chemical handling and waste disposal. UT complies with standard laboratory safety procedures and labs are inspected by university staff and safety personnel. A UT staff member (the current laboratory and infrastructure manager) monitors work done in the laboratory to ensure it meets the overall Laboratory Safety Procedure and established safety guidelines for the proposed project. UT has all applicable permits in place to conduct research on campus. Liquid effluents consisting of solvents, acids, bases, chemical reagents and other liquid wastes will be disposed of through the campus Division of Environmental Health and Safety, which picks up waste in approved containers and disposes of it through licensed facilities.

Support activities, including requirements, system engineering, circuit analysis and project consulting would take place at GPE (27 Mauchly Suite 206, Irvine, California 92618). These activities would occur in an office setting and would require use of a computer and specialized software tools only. No lab work involving hardware (construction or testing) or deliverable software is planned. GPE has completed an R&D questionnaire addressing the protocols for laboratory safety, risk management, chemical handling and waste disposal. GPE complies with standard laboratory safety procedures and labs are inspected by staff and safety personnel. GPE maintains workplace safety protocols for their

employees and work environment. These are internally generated, maintained and documented in the GPE Employee Handbook.

Based on this information, DOE has determined the work outlined is consistent with activities identified in categorical exclusion A9 (information gathering) and B3.6 (indoor bench-scale research and conventional laboratory operation).

**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:

Phase 2 and 3.

This restriction does not preclude you from:

Phase 1.

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.

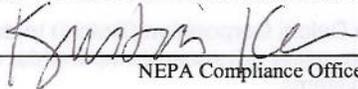
Note to Specialist :

Cristina Tyler 11.29.2011

DOE Funding: \$500,000

Cost Share: \$350,383

**SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.**

NEPA Compliance Officer Signature:  NEPA Compliance Officer Date: 11/29/2011

**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