

PMC-EF2a

(2.04.02)

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



RECIPIENT: Demand Energy Networks

STATE: WA

PROJECT  
TITLE : Demand Energy Networks

<b>Funding Opportunity Announcement Number</b>	<b>Procurement Instrument Number</b>	<b>NEPA Control Number</b>	<b>CID Number</b>
DE-EE-FOA-0000052	DE-EE0000139	GFO-09-155-015	0

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:

- B5.1** Actions to conserve energy, demonstrate potential energy conservation, and promote energy-efficiency that do not increase the indoor concentrations of potentially harmful substances. These actions may involve financial and technical assistance to individuals (such as builders, owners, consultants, designers), organizations (such as utilities), and state and local governments. Covered actions include, but are not limited to: programmed lowering of thermostat settings, placement of timers on hot water heaters, installation of solar hot water systems, installation of efficient lighting, improvements in generator efficiency and appliance efficiency ratings, development of energy-efficient manufacturing or industrial practices, and small-scale conservation and renewable energy research and development and pilot projects. The actions could involve building renovations or new structures in commercial, residential, agricultural, or industrial sectors. These actions do not include rulemakings, standard-settings, or proposed DOE legislation.
- B3.6** Siting, construction (or modification), operation, and decommissioning of facilities for indoor bench-scale research projects and conventional laboratory operations (for example, preparation of chemical standards and sample analysis); small-scale research and development projects; and small-scale pilot projects (generally less than two years) conducted to verify a concept before demonstration actions. Construction (or modification) will be within or contiguous to an already developed area (where active utilities and currently used roads are readily accessible).

## Rational for determination:

The Washington Department of Commerce will provide \$1,500,000 in Recovery Act funds to Demand Energy Networks (Demand Energy) to support the commercialization of a distributed electricity storage system. Demand Energy is located at 1232 N. Murray Lane, Liberty Lake, WA. Except for planned field tests of the system, the work will be conducted at Demand Energy's Liberty Lake facility.

The commercialization includes developing custom components that improve efficiency, form factor, and cost effectiveness, and enhancing existing network management software to support large scale systems with maximum security. Demand Energy has functioning prototypes of a distributed electricity storage unit and small scale network management software to monitor and control the devices. The current storage unit, called the Demand Shifter, is comprised of: an enclosure, batteries, a charging unit to charge the batteries, a controller board to monitor and manage the devices; and a motor assembly comprised of a brushless DC motor and an AC motor. All components are off-the-shelf and not yet optimized as a working system within the unit. The software to monitor and control the Demand Shifters is a Distribution Automation system designed for small scale systems. The system components fit within a metal, box-like enclosure that varies in size based on its capacity for use in the residential, commercial, or utility market. The system is designed to be portable.

The proposed project involves product development to optimize the system and short-term field testing to demonstrate its effectiveness. All development and testing activities would occur at the existing Demand Energy Networks facility in Spokane, Washington. No modifications to the facility are required. Development and testing includes:

- Furthering the current battery technology to include a form factor designed for distributed electricity storage and to improve battery cycle life to extend the life of the product.
- Development of a combined motor assembly – combining the brushless DC motor and AC motor into a single assembly. This will increase the efficiency of the storage device and reduce cost.
- Enhancing the charging unit to accommodate multiple product sizes (larger than the 1KW prototype units) for various applications and to commercialize charging from not only the electrical grid but also from renewable resources such as solar and wind.
- Repackaging enclosures for outdoor and indoor use that are designed around the redesigned components and designed specifically for distributed electricity storage.

Field testing will involve installing and testing the various configurations of storage units and proving the business cases. Installation of the storage units will occur at existing utility or public power facilities, within developed areas.

To support market needs, the project includes building units that provide 5KW, 30KW and 110KW of power. The 5KW system will support residential applications, the 30KW will support small commercial applications, and the 110KW will support commercial and agricultural applications. All versions will support renewable applications. Multiple units may be coupled to reach large scale – 1MW and greater.

Based on the information provided by the State and receipt, the work outlined is consistent with activities identified in Categorical Exclusion B5.1 and B3.6.

**NEPA PROVISION**

DOE has made a final NEPA determination for this award

Insert the following language in the award:

Note to Specialist :

According to the project officer, funding for this project is \$1,500,000. Unless the scope of this effort changes significantly, a change in funding will not affect my determination.

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

NEPA Compliance Officer Signature: \_\_\_\_\_  
NEPA Compliance Officer

Date: 6/1/10

**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: \_\_\_\_\_  
Field Office Manager

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