PMC-EF2a

(2/06/02)

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

**RECIPIENT:** Northern Power Systems **STATE:** VT

**PROJECT TITLE :** Commercialization of an Advanced 450kW Wind Turbine for Distributed

| Funding Opportunity Announcement Number | Procurement Instrument Number | NEPA Control Number | CID Number |
|---|---|---|---|
| DE-FOA-0000327 | DE-EE0004413 | GFO-0004413-002 | EE4413 |

**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:

| | |
|---|---|
| **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. |
| **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.) |

Rational for determination:

DOE is proposing to provide federal funding to Northern Power Systems (NPS) to design, build, laboratory test, and if deemed operational, field test, a prototype gearless, 450 kW wind turbine. Under this determination, DOE funding would be applied to Budget Period 2 activities.

In a previous determination (GFO-0004413-001; CX A9; signed on 3.17.2011), DOE categorically excluded Tasks 1-3 that allowed the expenditure of funding for design, modeling and project planning. Tasks 1 and 3 would continue into Budget Period 2. No changes would occur with these tasks; therefore the previous determination still stands.

The following tasks are proposed for Budget Period 2:

Task 1: Project Plan
Task 2: Critical Design Review
Task 3: Final Design Review and Supply Chain Development
Task 4: Assembly and Test of Prototype Design
4.1: Turbine Component and Sub-System Procurement
4.2: Dynamometer Testing of Generator-Converter Drivetrain
4.3: Blade Qualifications
4.4: Component Testing of the Generator
4.5: Component Testing of Power Converter
4.6: Component Testing of Yaw System
4.7: Component Testing of the Rotor Brakes
4.8: Assembly of Nacelle in Barre
4.9: Test Site Development and Permitting (Pre-Construction)
4.10: Final Design, Construction and Commissioning of Prototype at Test Site
4.11: Testing of Complete Midsize Turbine
Task 5: Design for Manufacture and Commercial Scale-Up
5.1: Reconfiguration or Expansion of Barre, Vermont Facility
5.2: Expansion of Supply Chain
Task 6: Final Project Reporting
6.1: Final Project Report
6.2: Final Project Review Meeting

Assembly and testing of the prototype components would be completed at NPS's 119,000 square foot manufacturing and test facility located at 29 Pitman Road, Barre, Vermont 05641. NPS has completed an R&D questionnaire addressing the protocols for laboratory safety, risk management, chemical handling and waste disposal. NPS complies with standard laboratory safety procedures. Engineering safety review occurs prior to testing and requires authorization by the safety committee members. All labs are inspected by staff and safety personnel.

Tasks 4.1-4.8 would involve design and assembly the turbine prototype components and would include performing tests on those components and their systems. Component testing is critical to the turbine's design evaluation and performance in advance of the prototype's field installation and testing. Assurances of a working prototype need to be verified by NPS personnel in-lab prior to moving forward with field testing.

Based on this information, DOE has determined the work outlined for tasks 4.1 through 4.8 is consistent with activities identified in categorical exclusion B3.6 (Small-scale research and development, laboratory operations and pilot projects), which constitute research and development activities necessary to verify a concept before demonstration actions occur.

Tasks 4.9-4.11 would consist of siting, installation and operation of the 450 kW wind turbine. NPS has proposed three potential testing locations: 1) the National Wind Technology Center in Jefferson County, Colorado, 2) the Stoney Corner Wind Farm in Missaukee County, Michigan and 3) the US Department of Agriculture's Conservation and Production Research Laboratory in Potter County, Texas. Due to the lack of a definitive location, a NEPA determination cannot be made for these tasks. Funding for tasks 4.9-4.11 will be conditional pending a final site determination by NPS and a final NEPA determination by DOE.

Subtasks 5.1 and 5.2 will include NPS's planning for the expansion of a future commercial level scale-up of the prototype and analyzing the components and systems from a production standpoint. Deliverables for these subtasks would include a facility utilization plan and a supplier development plan. Task 6 is final project reporting, which involves project management activities and document deliverables to DOE as necessary under this award. Based on this information, DOE has determined that these tasks are consistent with activities identified in categorical exclusion A9 (Information gathering, data analysis, conceptual design, feasibility studies, and demand studies).

**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:
Subtasks 4.9-4.11

All activities related to final design, construction and/or ground breaking, and commissioning and/or operation of the proposed project are prohibited until a final NEPA determination has been made.

A physical alteration and/or capital equipment purchase of equipment for NPS's manufacturing facility(s) as related to task 5. Task 5 activities are limited to planning and design activities only. Any changes to this task would require additional NEPA review.

This restriction does not preclude you from:
Tasks 1-3
Sub tasks 4.1 – 4.8
Task 5 (planning and design activities only)
Task 6

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:

Submit an additional EF1 if the prototype is deemed feasible for next stage of project development and field testing would commence. Provide details of selected site per the Environmental checklist. Also include project description, construction plan, operation plan and decommissioning plan. Describe details of how DOE and cost share funding would be use for this portion of the project.

Note to Specialist :

Laura Margason March 27, 2012

DOE Funding: $1,826,378
Cost Share: $7,305,512
Total Funding: $9,131,890

This award is conditional and should be placed on ASAP approval if not done so already. There are conditions placed on subtasks 4.9, 4.10, and 4.11 and NEPA does not recommend expenditure of fund on these activities. Please note that task 5 funds should be limited to planning and design activities only, as described by the current SOPO.

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

NEPA Compliance Officer Signature: Electronically Signed By Lori Gray / Lori Gray Date: 3/27/2012
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