

PMC-EF2a

(20402)

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

**RECIPIENT:** GE Global Research**STATE:** NY

PROJECT TITLE : Superconductivity for Large-Scale Wind Turbines

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0000439	DE-EE0005143	GFO-0005143-001	EE5143

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 (including, but not limited to, literature surveys, inventories, audits), data analysis (including computer modeling), document preparation (such as conceptual design or feasibility studies, analytical energy supply and demand studies), and dissemination (including, but not limited to, document mailings, publication, and distribution; and classroom training and informational programs), but not including site characterization or environmental monitoring.
- 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:

DOE proposes to provide federal funding to General Electric – Global Research (GEGR) to support the conceptual design, analysis, and testing of a low-temperature, superconducting, direct-drive wind turbine generator. The target generator size is 10 MW. Components such as two sets of cryocoolers and their associated compressors as well as wire, pipework, torque tube, cryostat modifications, and insulation materials will be purchased and utilized in an established laboratory environment. Non-laboratory portions of the project consist of desk-top and computer application analyses. The project goal is to reduce wind turbine cost of energy (COE) by applying low temperature superconductivity technology to a direct-drive generator.

This work will be performed at two locations:

- GEGR Center, 1 Research Circle, Niskayuna, New York 12309
- Oak Ridge National Laboratory (ORNL), Knoxville, Tennessee

The project consists of two sequential budget periods and four tasks. The DOE share of funding for the entire project is:

Total Budget: \$3,028,592

DOE Share: \$1,942,906 [64% of total]

Tasks 1 and 2 below will define optimal design, evaluate economic, environmental and commercial feasibility, and identify high-risk system components. The analyses will be conducted as desk-top and/or computer-aided studies. Tasks 3 and 4 entail risk reduction for high-risk components identified during Tasks 1 and 2. The Risk Reduction task includes fabrication and testing of components, test rigs, and fixtures at both the GEGR Center and ORNL utilizing existing laboratory facilities.

- Task 1: Conceptual Design
- Task 2: Project management and Reporting of Task 1
- Task 3: Risk Reduction
- Task 4: Project Management and Reporting of Task 3

Deliverables include: concept design, risk identification and abatement, and commercial evaluation reporting.

The Department of Energy has determined that activities described in the funding request SOPO are limited to desk-top/computer information gathering and data analysis, and small-scale laboratory research; and are consistent with an A9/B3.6 Categorical Exclusion as defined in 10CFR 1021.

NEPA PROVISION

DOE has made a final NEPA determination for this award

Insert the following language in the award:

If you intend to make changes to the scope or objective of your project you are required to contact the Project Officer identified in Block 11 of the Notice of Financial Assistance Award before proceeding. You must receive notification of approval from the DOE Contracting Officer prior to commencing with work beyond that currently approved.

Note to Specialist :

John DuWaldt 8.16.2011

DOE Funding: \$1,942,906
Total Project Cost:\$3,028,592

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature: _____



NEPA Compliance Officer

Date: _____

8/16/11

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: _____