

PMC-EF2a

(20402)

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



RECIPIENT: Case Western Reserve University

STATE: OH

PROJECT**TITLE :**

Great Lakes Institute for Energy Innovation - FY10 Renewal (Tasks 6 & 7)

Funding Opportunity Announcement Number

N/A-CDP

Procurement Instrument Number

EE0000275

NEPA Control Number

GFO-09-374-001

CID Number

EE275

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.
- B3.1** Onsite and offsite site characterization and environmental monitoring, including siting, construction (or modification), operation, and dismantlement or closing (abandonment) of characterization and monitoring devices and siting, construction, and associated operation of a small-scale laboratory building or renovation of a room in an existing building for sample analysis. Activities covered include, but are not limited to, site characterization and environmental monitoring under CERCLA and RCRA. Specific activities include, but are not limited to:
- 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).
- 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.

Rational for determination:

Case Western Reserve University (CWRU), located in Cleveland, Ohio, is proposing to use DOE funding under the renewed 2010 congressionally directed project DE-EE0000275. Under congressionally direct project DE-EE0000275 awarded in FY09, Case Western was awarded a renewal grant for FY10. The original NEPA Determination (GFO-09-374) for Tasks 1-5, listed below, was signed October 23, 2009 and the project was categorized as CX A9, B3.1, and B3.6. CWRU has expanded the scope proposed in FY09 to include additional equipment for the electrochemistry labs (Task 6) and purchase and installation of a wind turbine (Task 7).

Tasks 1-5, previously evaluated in GFO-09-374, are the following:

- Task 1, Case Electrochemical Energy Storage Testing Laboratory;
- Task 2, Power Grid Simulation Framework for Analysis and HWIL Testing;
- Task 3, Wind Energy Research Center;
- Task 4, Self-Organizing Donor-acceptor Photovoltaic Molecular Systems; and
- Task 5, Project Management and Reporting.

This NEPA determination evaluates Task 6 and 7 presented in the current Statement of Project Objectives. Laboratory work will take place at Wright Fuel Cell Center, West Quad and Lab 115 A. W. Smith Building located on the CWRU campus. The proposed location for the turbine installation is on CWRU property in the center of a quadrant located south of Adelbert Gym and the 1-2-1 Fitness, north of the Veale parking garage, west of Adelbert Drive, and east of Van Horn Field. The area currently surrounding the proposed turbine location has been previously disturbed and is currently developed and covered in walkways and landscaped grass

Task 6 would secure resources for new electrochemical storage concepts and an energy storage validation center.

One of two proposed research projects would identify nano-particle materials and approaches that have the capability to enhance super capacitor and battery performance by 10% over current base-line devices. The second project would examine new chemistries and design alternatives to improve efficiency and reduce cost for large-scale energy storage flow batteries. This task would also create the Energy Storage Validation Center (ESVC) for developing certification procedures and protocols to be used for batteries, capacitors, and hybrid electrochemically-based storage devices.

Task 7 would consist of purchase and installation of a wind turbine for applied research on wind power efficiency and serve as a power source for the University. The turbine selected for the installation is a Northwind 100 class IEC IIA wind turbine capable of generating 100 kW at an overall turbine height of 156 feet tall with a total rotor diameter of 69 feet.

Task 6 environmental issues reviewed:

The R&D questionnaire states no additional permits would be needed and there would be no generation of air emissions associated with this work. Hazardous waste would be disposed according to university, local, state, and federal regulations. A Chemical Hygiene Plan, waste disposal, and safety protocols are in place which are monitored by the CWRU Department of Occupational and Environmental Safety.

Task 7 environmental issues reviewed:

The applicant has submitted a Safety Review containing CWRU's safety commitments. This includes meeting the noise level city ordinance requirement, City of Cleveland Building permit requirement to assure a 156 ft radius "fall zone" within CRWU Property lines, and turbine monitoring and lockout procedures to deter any potential tampering.

Aircraft warning lights would be installed at the top of the wind turbine, per manufacturer's suggestions and consistent with FAA guidance (Obstruction Marking and Lighting, AC 70/7460-1K, February 2007). The turbine height of 156 feet is below the 200 feet height requirement that would necessitate an Obstruction Evaluation by FAA (Great Lakes Wind Energy Center Feasibility Study (GLWEC FS)).

Potential visibility impacts for the proposed wind turbine have been evaluated by means of simulated views from a point of sight. The visual impacts are negligible due to the project's location between existing campus building and not visible to residential areas. The surrounding campus buildings are of comparable height to the turbine.

In compliance with environmental regulations, the turbine is located behind the coastal management zoning line (ODNR Coastal Management Zone) and no special environmental regulations apply. Radar studies contained in the GLWEC FS indicate that nocturnal animal migration occurs primarily at altitudes above the height of wind turbines, with a small percentage of birds migrating at lower altitudes. NEXRAD data in the GLWEC FS also confirms that the majority of nocturnal migrants in the Project area fly above the height of turbines.

DOE requested a technical review for this project by U.S. Fish and Wildlife (USFWS) through an e-mail communication (Larry Kimmel, DOE Detail NEPA specialist to Megan Seymour, USFWS specialist on 9/8/10). Based on the information CWRU has provided, USFWS concludes the proposed wind turbine site project is not likely to adversely affect Endangered Species known to be present in the project area, including the Indiana Bat and piping plover, or migratory birds due to the project's urban setting and lack of suitable habitat (USFWS letter, Knapp to Blazek, 9-13-10).

Task 8 provides for Project Management and Reporting (previously approved as Task 5 in GFO-09-374). All project tasks would be monitored through the Great Lakes Energy Institute's administration. Reports would be provided in accordance with the Federal Assistance Reporting Checklist following the instructions included therein. This project is comprised of laboratory operations and information gathering (Task 6) and a renewable energy project (Task 7). Therefore, DOE has determined this project is categorically excluded as CX A9, B3.6, and B5.1.

NEPA PROVISION

DOE has made a final NEPA determination for this award

Insert the following language in the award:

Note to Specialist :

EF2A written by Larry Kimmel, 9-15-10

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature: Kristin Kerwin
NEPA Compliance Officer

Date: 9/15/2010

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: _____