

PMC-EF2a

(2.04.02)

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



RECIPIENT: Illinois Institute of Technology

STATE: IL

PROJECT TITLE : A World-Class University-Industry Consortium for Wind Energy Research, Education, and Workforce Development

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0000090	DE-EE0002979	GFO-10-114-002	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:

Illinois Institute of Technology (IIT) in Chicago, Illinois is proposing to use ARRA funding to develop an industry/academe wind consortium. Project activities under this proposal include small wind turbine construction and deployment; curriculum and undergraduate degree program development; control algorithms development for enhancing the reliability of wind turbine components; operation and planning tool development for accommodating the high penetration of intermittent wind energy in electric power utility systems; and stakeholder/student education.

The proposed project includes the final two tasks of a larger scope of work: A World-Class University-Industry Consortium for Wind Energy Research, Education and Workforce Development (GFO-10-114). DOE has previously categorically excluded Task 1 and Task 4-14. The following is an evaluation of Task 2 and Task 3.

Task 2 involves the study (testing and demonstration) of an 8 kW Virdy 8000 turbine inside in an engineering lab for educational purposes only. The components of the wind turbine motor would be used to determine feasibility and reliability studies. The unit would not be installed for wind energy production, but would be tested at the IIT engineering lab in Siegel Hall, Electrical and Computer Engineering Department located at 3301 South Dearborn Street. Because this task involves lab work, IIT submitted a Laboratory R&D Questionnaire. IIT adheres to a comprehensive Health and Safety program to ensure the safety of faculty, students, contractors, and tenants. IIT has appropriately addressed all issues pertaining to safety, permitting and waste management.

Task 3 involves the installation of an 8 kW Virdy 8000 turbine outside on IIT's campus, located on Stuart Field (31st and Federal Streets), to promote public awareness on wind energy. This task includes the design and construction work for the turbine. The Virdy 8000 turbine is a residential/commercial building scale turbine with a rated power of 8 kW. It includes a 26-foot diameter rotor, and will sit atop an 80-foot guyed, tilt-up, tubular tower. The unit has a cut-in wind speed of 10 mph and a cut-out wind speed of 56 mph, and has a variable rotor speed of 50-150 RPM. The unit has a fail-safe, mechanical brake and will automatically shut-down in the event of high wind, over-speed, or grid failure. The unit will sit at approximately the same height as the light posts, which provide light to the athletic field.

IIT consulted with the Illinois Department of Natural Resources (IDNR), which provided a determination of no affect on threatened and endangered species in the state. The IDNR has no records of any state-listed endangered or threatened species or any Illinois Natural Areas Inventory Site within one-mile of the proposed wind turbine. As a result of a no affect determination by the IDNR, a Section 7 consultation with the United States of Fish and Wildlife

(USFWS) is not required.

The proposed site is more than one mile from the shores of Lake Michigan. The area inland from the lakeshore for a distance of one-half-mile is widely recognized as crucially-important to nocturnal migrating birds during the spring migration. The proposed site is beyond this distance and there appears to be no habitat near Stuart Field, which would serve to attract or concentrate migratory birds. Given its low elevation and location, this wind turbine is unlikely to pose any threat to migratory birds. The following information, provided by IDNR, determines that the proposed project poses no adverse affects to migratory bird species.

Cook County is considered to lie within the historic range of the federally-listed Indiana Bat, *Myotis sodalis*, but the IDNR has no record of this species in Cook County within the last fifty years.

Cook County is included within the migratory and historic breeding range of the federally-listed endangered Piping Plover, *Charadrius melodus*. Except for a single breeding pair in northern Lake County, this species has not been known to breed in Illinois during the last thirty years. It is unlikely that migratory movements will occur at the low altitude represented by this wind turbine.

The state-listed threatened Peregrine Falcon, *Falco peregrinus*, occupies and breeds among a number of tall buildings in Chicago. These populations are concentrated in the downtown Loop, several miles to the north, and near Calumet Harbor, several miles to the southeast. No nesting sites are known within two miles of the project location. Given the abundance of pigeons throughout Chicago, their primary prey and again considering the size and elevation of the proposed turbine, any adverse affect to the Peregrine Falcon is unlikely.

The Bald Eagle, *Haliaeetus leucocephalus*, although recently de-listed, remains protected under federal law. Only one breeding pair of this species is present in Cook County, along the Calumet River, about 12 miles south of the proposed site. Because this site offers no characteristics attractive to this species, this project poses no adverse affects to the Bald Eagle.

Douglas Stotz, the Senior Conservation Ecologist/Ornithologist at Chicago's Field Museum reviewed the following information, and he concurred with the conclusions of the IDNR. He suggests that the turbine be monitored for wildlife mortality for at least a year, with a focus on spring (March 10 to May 31) and fall migration (August 20 to November 30). IIT agrees that it is prudent to monitor the turbine's operation for wildlife mortality, and will set up a monitoring program with its Facilities Department. If additional protected resources are encountered during the project's implementation, IIT will halt the operation of the turbine until IIT can make a new determination in order to comply with the applicable statutes and regulations.

Based on consultation, current uses and mitigation efforts applied by IIT, impacts related to the project are anticipated to have negligible effects to the human and natural environment. In accordance with the information above, DOE has determined that Task 2 qualifies for a B3.6 (indoor bench-scale research projects and conventional laboratory information) and Task 3 qualifies for a B5.1 (actions to conserve energy via small-scale renewable energy project).

NEPA PROVISION

Note to Specialist :

EF-2a prepared by Cristina Tyler on 10/5/2010.

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature:


NEPA Compliance Officer

Date:

10/13/10

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 :