

PMC-ND  
(1.08.09.13)

**U.S. DEPARTMENT OF ENERGY**  
**OFFICE OF ENERGY EFFICIENCY AND RENEWABLE ENERGY**  
**NEPA DETERMINATION**



**RECIPIENT:** Laufer Wind Group, LLC

**STATE:** NY

**PROJECT TITLE** Eagle Take Minimization System  
:

**Funding Opportunity Announcement Number**  
DE-FOA-0001554

**Procurement Instrument Number**  
DE-EE0007884

**NEPA Control Number** **CID Number**  
GFO-0007884-001

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, 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.)

**B3.2 Aviation activities**

Aviation activities for survey, monitoring, or security purposes that comply with Federal Aviation Administration regulations.

**B3.3 Research related to conservation of fish, wildlife, and cultural resources**

Field and laboratory research, inventory, and information collection activities that are directly related to the conservation of fish and wildlife resources or to the protection of cultural resources, provided that such activities would not have the potential to cause significant impacts on fish and wildlife habitat or populations or to cultural resources.

**Rationale for determination:**

The Department of Energy (DOE) is proposing to provide funding to Laufer Wind Group, LLC (LW) to develop and demonstrate an automated Eagle Take Minimization System that requires no human-in-the-loop to operate effectively and reliably.

LW is proposing to:

- Develop and test an Eagle Take Minimization System at its engineering facility in Bedford, NH. This would include setting up networked radars, cameras, and Central Controller. The system would be performance tested with eagle-Unmanned Aerial Vehicle (UAV) surrogates.
- Work with National Wind Technology Center (NWTC) engineers and technicians to install an Eagle Take Minimization radar and camera system at NWTC, and integrate the system with the DOE 1.5 MW GE turbine SCADA on the NWTC campus. This would include developing a SCADA software interface between the Eagle Take Minimization System and the NWTC/GE turbine.
- Test the Eagle Take Minimization System at NWTC with live eagles provided by Auburn University Southeast Raptor Center, Auburn AL. The Auburn eagles would be instrumented with GPS to provide ground truth data to compare with system tracking and recognition performance.
- Demonstrate that when eagles are detected, a SCADA alarm to the NWTC/GE turbine could be used to curtail blade rotation, and then restore full blade rotation when eagles are not in range.

The project is divided into eleven tasks:

- Task 1.0: Eagle Take System Analysis
- Task 2.0: Eagle Take Equipment Procurement
- Task 3.0: Radar Tuning for Eagle Detection
- Task 4.0: Optical Tracking Software
- Task 5.0: Eagle Recognition and Identification
- Task 6.0: Eagle Take System Tests (NWTC)

Subtask 6.1: Draft test plan, draft safety plan, and obtain required permits  
Subtask 6.2: Conduct Eagle Take Systems Tests at NWTC  
Task 7.0: SCADA Interface with NWTC/GE Turbine  
Task 8.0: Eagle Take Demo Tests at NWTC  
Task 9.0: Reporting  
Task 10.0: Systems Engineering  
Task 11.0: Program Management

Project activities would occur at LW's engineering facility in Bedford, NH and at the National Wind Technology Center in Boulder, CO.

At the Bedford location, LW would perform overall Eagle Take Minimization System design and analysis for radars, Central Controller, fixed and cameras, and network communications. LW would set up two networked MD-12 Doppler radars onsite and tune the Doppler radars to optimally detect eagle-like target signatures and reject other tracked targets. Radar tracking performance would be evaluated with eagle-UAV surrogates. LW would develop and integrate camera auto-track software with the radar Central Controller. Camera auto tracking would be evaluated with eagle-UAV surrogates.

The Bedford location is currently in use for engineering, research and development, light manufacturing and assembly. No physical modifications of existing facilities or construction of new facilities would occur. No ground disturbing activities would occur. Minimal re-organization of R&D workspace would be required to accommodate configuration and testing of camera sub-components. The project would involve the use of 2 low-power x-band radars. Radar units would be temporarily installed on mobile man-lifts. There is no radiation risk to personnel beyond 10 feet from the radar during operation. Radars are mounted at 30 feet above the ground, satisfying federal safety requirements. The project would involve the use of small UAVs to serve as eagle surrogates. UAV operators and usage would maintain line of sight and follow federal guidelines.

Based on the locations, types, scope, and scale of the proposed activities, DOE does not anticipate impacts to integral elements/resources of concern as a result of project activities at the Bedford location.

At the NWTC, activities would include installation and testing of an Eagle Take Mitigation System. The system would consist of 2 networked radars and 2 networked cameras. LW would develop SCADA interface software that sends alarms to the NWTC/GE turbine when eagle targets are within a specified range. The Eagle Take System would be tested with eagle-UAV surrogates and live eagles provided by Auburn University's Raptor Center.

All physical work at NWTC is subject to additional DOE NEPA review after the test plan, safety plan, and required permits and permissions have been finalized.

Based on the review of the proposal, DOE has determined that the tasks identified above fit within the class of action(s) and the integral elements of Appendix B to Subpart D of 10 CFR 1021 outlined in the DOE categorical exclusion(s) selected above. DOE has also determined that: (1) there are no extraordinary circumstances (as defined by 10 CFR 1021.410(2)) related to the proposal that may affect the significance of the environmental effects of the proposal; (2) the proposal has not been segmented to meet the definition of a categorical exclusion; and (3) the proposal is not connected to other actions with potentially significant impacts, related to other proposals with cumulatively significant actions, or an improper interim action. Tasks 1, 2, 3, 4, 5, 6.1, 9, 10 and 11 are categorically excluded from further NEPA review.

Tasks 6.2, 7, and 8 are subject to additional DOE NEPA review when sufficient information has been developed and provided to DOE.

#### **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:

Subtask 6.2: Conduct Eagle Take Systems Tests at NWTC

Task 7.0: SCADA Interface with NWTC/GE Turbine

Task 8.0: Eagle Take Demo Tests at NWTC

This restriction does not preclude you from:

Task 1.0: Eagle Take System Analysis

Task 2.0: Eagle Take Equipment Procurement

Task 3.0: Radar Tuning for Eagle Detection

Task 4.0: Optical Tracking Software

Task 5.0: Eagle Recognition and Identification

Subtask 6.1: Draft test plan, draft safety plan, and obtain required permits

Task 9.0: Reporting

Task 10.0: Systems Engineering

Task 11.0: Program Management

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.

Note to Specialist :

This NEPA determination requires a tailored NEPA provision.

Wind Program

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

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



Kristin Kerwin  
NEPA Compliance Officer

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

3/2/2017

**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: \_\_\_\_\_