PMC-ND
(1.08.09.13)

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

RECIPIENT: Oregon State University **STATE:** OR

PROJECT TITLE : A Heterogeneous System for Eagle Detection, Deterrent, and Wildlife Collision Detection for Wind Turbines

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0001554	DE-EE0007885	GFO-0007885-001	GO7885

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.)
B3.3 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:

DOE is proposing to provide funding to Oregon State University to develop a system for eagle detection, deterrent, and collision detection for wind turbines. The proposed project activities include the design, development, fabrication and field testing of three integrated systems: (1) Eagles detection (2) Eagles deterrent and (3) Wind turbine blade impact detection.

Proposed project tasks include:
Task 1.00: Eagle detection system
Subtask 1.10: System design & equipment purchase
Subtask 1.20: Collecting videos for training the system
Subtask 1.30: Developing software for eagle detection
Subtask 1.35: Development of lab and field test protocols
Subtask 1.40: Developing software for trajectory estimation
Subtask 1.50: Laboratory validation of eagle detection and trajectory estimation.
Subtask 1.60: Hardware design and manufacturing
Subtask 1.70: Subsystem field tests (local) with live birds.
Subtask 1.80: Eagle detection tests

Task 2.00: Eagle deterrent System
Subtask 2.10: System design
Subtask 2.20: VD laboratory and environmental tests
Subtask 2.30: Take permit for activities involving wild eagle
Subtask 2.40: VD selection – procurement
Subtask 2.50: Ground VD operations control system design and manufacturing
Subtask 2.60: VD hardware customization and manufacturing
Subtask 2.70: Ground VD cluster field tests (local)
Subtask 2.80: Eagle deterrent tests, collect eagle footage

Task 3.00: Blade Impact Detection
Subtask 3.10: Electronic system design
Subtask 3.20: Complete blade-unit design

Subtask 3.30: Firmware development
Subtask 3.40: Blade sensors and blade camera signal processing
Subtask 3.50: Impact detection system verification and validation

Task 4.00: System Integration
Subtask 4.10: Hardware design / manufacturing
Subtask 4.50: Module integration
Subtask 4.60: Complete system integration and lab tests
Subtask 4.70: Complete system local field tests, no birds
Subtask 4.80: Complete system local field tests, with birds

Task 5.00: Complete System Testing with Wind Turbines
Subtask 5.10: Test design and planning
Subtask 5.20: Integration functional tests at NREL-NWTC
Subtask 5.30: Functional tests at NAWRTC, New Mexico
Subtask 5.40: Final qualification tests at NREL-NWTC

Task 6.00: Publications and reporting
Subtasks 6.10 through 6.30: Conferences (two/three conferences, TBD), Journal papers
Subtask 6.40: Contractual end-of-project report.

Design, development, and fabrication activities would occur at the Oregon State University campus in Corvallis, OR. Systems testing without wind turbines would occur at university labs, in generic fields, and at raptor centers. The field test locations have not yet been identified. Testing on wind turbines will occur at the NREL National Wind Technology Center (NWTC) and at the North American Wind Research and Training Center (NAWRTC), in Tucumcari, New Mexico.

Design, development, fabrication, and in-lab systems testing activities do not require new construction, modification of existing facilities, or ground disturbing activities and do not have the potential to impact sensitive resources including threatened or endangered species, bald or golden eagles, migratory birds, air or water quality, wetlands or cultural resources.

There is not enough information about the field testing available at this time activities for DOE to complete a meaningful NEPA review at this time. Additional DOE NEPA review will be completed when the necessary detail about proposed field work and locations has been developed (prior to authorizing any field work activities).

Based on the review of the proposal, DOE has determined that the proposed design, development, fabrication, and in-lab system testing activities 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. The design, development, fabrication and in-lab systems testing activities are categorically excluded from further NEPA review. All proposed field testing activities are subject to additional NEPA review.

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 1.70: Subsystem field tests (local) with live birds.
Subtask 1.80: Eagle detection tests

Subtask 2.70: Ground VD cluster field tests (local)
Subtask 2.80: Eagle deterrent tests, collect eagle footage

Subtask 4.70: Complete system local field tests, no birds
Subtask 4.80: Complete system local field tests, with birds

Subtask 5.20: Integration functional tests at NREL-NWTC
Subtask 5.30: Functional tests at NAWRTC, New Mexico
Subtask 5.40: Final qualification tests at NREL-NWTC

This restriction does not preclude you from:
Subtask 1.10: System design & equipment purchase
Subtask 1.20: Collecting videos for training the system
Subtask 1.30: Developing software for eagle detection
Subtask 1.35: Development of lab and field test protocols
Subtask 1.40: Developing software for trajectory estimation
Subtask 1.50: Laboratory validation of eagle detection and trajectory estimation.
Subtask 1.60: Hardware design and manufacturing

Subtask 2.10: System design
Subtask 2.20: VD laboratory and environmental tests
Subtask 2.30: Take permit for activities involving wild eagle
Subtask 2.40: VD selection – procurement
Subtask 2.50: Ground VD operations control system design and manufacturing
Subtask 2.60: VD hardware customization and manufacturing

Subtask 3.10: Electronic system design
Subtask 3.20: Complete blade-unit design
Subtask 3.30: Firmware development
Subtask 3.40: Blade sensors and blade camera signal processing
Subtask 3.50: Impact detection system verification and validation

Subtask 4.10: Hardware design / manufacturing
Subtask 4.50: Module integration
Subtask 4.60: Complete system integration and lab tests

Subtask 5.10: Test design and planning

Subtasks 6.10, 6.20, and 6.30 Conferences (two/three conferences, TBD), Journal papers
Subtask 6.40: Contractual end-of-project report.

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 :

Wind Power Program
This NEPA determination requires a tailored NEPA provision.

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature: Electronically Signed By: Kristin Kerwin Date: 3/31/2017
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