PMC-ND
(1.08.09.13)

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

RECIPIENT: NREL and Oregon State University **STATE:** CO

PROJECT TITLE: Heterogeneous System for Eagle Detection, Deterrent, and Wildlife Collision Detection for Wind Turbines, NREL Tracking No. 18-021

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
1554	DE-AC36-08GO28308	NREL-18-021	GO28308

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:

B3.8 Outdoor terrestrial ecological and environmental research	Outdoor terrestrial ecological and environmental research in a small area (generally less than 5 acres), including, but not limited to, siting, construction, and operation of a smallscale laboratory building or renovation of a room in an existing building for associated analysis. Such activities would be designed in conformance with applicable requirements and use best management practices to limit the potential effects of any resultant ground disturbance.
B3.11 Outdoor tests and experiments on materials and equipment components	Outdoor tests and experiments for the development, quality assurance, or reliability of materials and equipment (including, but not limited to, weapon system components) under controlled conditions. Covered actions include, but are not limited to, burn tests (such as tests of electric cable fire resistance or the combustion characteristics of fuels), impact tests (such as pneumatic ejector tests using earthen embankments or concrete slabs designated and routinely used for that purpose), or drop, puncture, water-immersion, or thermal tests. Covered actions would not involve source, special nuclear, or byproduct materials, except encapsulated sources manufactured to applicable standards that contain source, special nuclear, or byproduct materials may be used for nondestructive actions such as detector/sensor development and testing and first responder field training.
B3.2 Aviation activities	Aviation activities for survey, monitoring, or security purposes that comply with Federal Aviation Administration regulations.

Rationale for determination:

The U.S. Department of Energy's (DOE) National Renewable Energy Laboratory (NREL) in collaboration with Oregon State University is proposing to install and test an integrated system that is being designed to minimize impacts to eagles from wind turbines. The proposed research project would take place at the National Wind Technology Center (NWTC) in Jefferson County, Colorado.

The research system would be installed and tested at the NWTC Site 4.0 using the 1.5-mW GE Turbine. Installation would consist of: 1) two omni-directional 360-degree cameras mounted to the nacelle and adjacent met tower and connected wireless to a deep neural network computing system; 2) three wave-dancers mounted on the ground at the base of the GE Turbine and two commercially available inflatable air-dancers mounted on the nacelle; 3) impact detection sensors mounted on the blades and a detection camera mounted on the nacelle.

To test the system, researchers would use simulated avian targets (tennis balls or similarly shaped produce) launched using a compressed air cannon at the turbine. The system is designed to recognize the object (eagle/tennis ball/produce) and trigger the deterrents (inflatable air-dancers) when it flies within the vicinity of the turbine.

Researchers are also proposing to simulate avian target approaching the turbine using a small fixed-wing Unmanned Aerial System (UAS) weighing less than 55 lbs. UAS services would be provided by Red Mountain Scientific (RMS), a DOE authorized. small UAS service provider. Flights would be conducted under the supervision of an FAA Part 107 certificated pilot and in accordance with FAA Part 107 regulations. The Pilot-In-Command would direct a team of one or more visual observers and one remote pilot.

Flights would occur in the Rocky Mountain Metropolitan Airport Class D airspace at altitudes up to 400 feet above ground level in a race-track pattern. FAA authorization and notification would be in accordance with the FAA's Low Altitude Authorization and Notification Capability (LAANC) process. Alternatively, or in addition to the UAS, a kite would be flown to simulate an avian target. This would be flown on the Rocky Flats National Wildlife Refuge under an existing special use permit between NREL and USFWS. Two workers would work together to manipulate the kite near the NWTC boarder. The kite may also be used on the NWTC to simulate a closer avian target. The kite would be a maximum of 8-ft by 4-ft which would simulate the size of an eagle.

Research activities are proposed to occur in the first week of October 2018. UAV flight is proposed for October 18, 2018. The research would be conducted over two week-long field campaigns for up to 8 hours a day and 3 days during each week. No ground disturbing activities would occur. Existing NREL health and safety policies and procedures would be followed including employee training, engineering controls, and monitoring.

Proper PPE will be worn to ensure that the air cannon can be handled safely. Use of a spotter will be employed at all times to monitor the flight path of tennis balls. When working at heights during installation of the system, proper PPE including harness, safety glasses and hard hat will be worn and a safety lanyard will be tied off at all times.

No impacts to wildlife or other resources are likely to occur from the research activities.

Based on the review of the proposal, DOE has determined the proposal fits 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. This proposal is categorically excluded from further NEPA review.

NEPA PROVISION

DOE has made a final NEPA determination for this award

Insert the following language in the award:

If the Recipient intends to make changes to the scope or objective of this project, the Recipient is required to contact the Project Officer, identified in Block 15 of the Assistance Agreement before proceeding. The Recipient must receive notification of approval from the DOE Contracting Officer prior to commencing with work beyond that currently approved. If the Recipient moves forward with activities that are not authorized for Federal funding by the DOE Contracting Officer in advance of a final NEPA decision, the Recipient is doing so at risk of not receiving Federal funding and such costs may not be recognized as allowable cost share.

Note to Specialist :

NEPA review completed by Laura Margason on September 17, 2018
Amended October 15, 2018

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature: Electronically Signed By: Kristin Kerwin Date: 10/15/2018

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