PMC-ND

(1.08.09.13)

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

RECIPIENT: NREL **STATE:** CO

PROJECT TITLE : NREL-22-008 AWAKEN Project - Oklahoma

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
	DE-AC36-08GO28308	NREL-22-008	GO28308

Based on my review of the information concerning the proposed action, as NEPA Compliance Officer (authorized under DOE Policy 451.1), I have made the following determination:

CX, EA, EIS APPENDIX AND NUMBER:

Description:

B5.18 Wind turbines	The installation, modification, operation, and removal of a small number (generally not more than 2) of commercially available wind turbines, with a total height generally less than 200 feet (measured from the ground to the maximum height of blade rotation) that (1) are located within a previously disturbed or developed area; (2) are located more than 10 nautical miles (about 11.5 miles) from an airport or aviation navigation aid; (3) are located more than 1.5 nautical miles (about 1.7 miles) from National Weather Service or Federal Aviation Administration Doppler weather radar; (4) would not have the potential to cause significant impacts on bird or bat populations; and (5) are sited or designed such that the project would not have the potential to cause significant impacts to persons (such as from shadow flicker and other visual effects, and noise). Covered actions would be in accordance with applicable requirements (such as local land use and zoning requirements) in the proposed project area and would incorporate appropriate control technologies and best management practices. Covered actions include only those related to wind turbines to be installed on land.
B3.2 Aviation activities	Aviation activities for survey, monitoring, or security purposes that comply with Federal Aviation Administration regulations.
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.)

Rationale for determination:

The U.S. Department of Energy's (DOE) National Renewable Energy Laboratory is proposing to install, operate, and decommission atmospheric monitoring equipment and support equipment in and around five wind farms in Oklahoma. The purpose of the proposed project is to collect data on wind farm atmospheric interactions and wind turbine response. The proposed project is a collaborative effort with several DOE partners, university partners, the National Oceanic and Atmospheric Administration, and the National Science Foundation.

Equipment would be installed at 14 field sites across the following five wind farms in north central Oklahoma: Breckenridge; Armadillo Flats; King Plains; Thunder Ranch; and Chisholm View. Activities that would be conducted in 2022 are known, but activities planned for 2023 (specifically Unmanned Aerial System (UAS) flights and NREL met tower installation) are not yet defined. Additional NEPA review would be conducted for those activities once they are defined.

GROUND-MOUNTED EQUIPMENT

At each of the 14 field sites, the ground would be cleared of vegetation and covered with road base gravel to cover the surface area that is not covered by a concrete foundation. In addition, poured concrete pad foundations of varying size would be poured to support 15 instruments that would be deployed.

Two new 90-meter tilt-up met towers would be installed. The first would be installed and operated by Sandia National Laboratory (SNL) in 2022, and the second would be installed and operated by NREL in 2023. Prior to installation, NREL would complete an FAA Obstruction Evaluation and would comply with all FAA requirements for the tower they install. The new met towers would require a new concrete base, three guy wires with visibility balls, and nine yellow marking sleeves. The guy wires would be anchor-screwed into the ground and FAA lighting would be installed at the top of each tower.

Sensors would be installed on free standing 3-meter-high towers on a concrete platform to collect atmospheric data. These towers would not require guy wires. Instruments that would be installed include: remote-sensing devices including lidar, Atmospheric Emitted Radiance Interferometer (AERI), and microwave radiometers (these units would rest on the road base and be secured by shallow stakes); disdrometers and ceilometers (these would be installed on a shallow concrete foundation); radar (these would have a dedicated concrete foundation with multiple footings); solar trailers would be placed in a couple of locations and would be secured with tethers attached to concrete weights; and Collaborative Lower Atmospheric Mobile Profiling System (CLAMPS), tethersondes and other mobile systems (these would be located on parked trailers requiring no additional infrastructure).

Electrical conduit would be installed to connect the equipment to existing electrical infrastructure. Installation would require a trench that is one foot wide and three feet deep. Most of the project equipment would be enclosed in cattle fencing and ground-mounted equipment would be placed on gravel road base, metal frames, pavers, or wooden skids. Radar installations would be surrounded by an 8-foot chain-link fence with a locking gate, and two short access roads connecting to the nearest existing road would be installed.

EQUIPMENT INSTALLED ON EXISTING INFRASTURCURE
Various equipment would be installed on existing wind turbines. Up to two scanning lidars would be installed on each wind turbine. Additionally, strain gauges on blade roots, tower base, midsection, and top would be installed. A data acquisition system would be installed to record strain gauge data and turbine operation data.

AERIAL MEASUREMENTS
DOE's Atmospheric and Radiation Measurement Program (ARM) would use a tethered weather balloon equipped with a radiosonde to measure atmospheric conditions at various heights at field sites A1 and H. Radiosonde deployment would occur for a few hours per day for up to 30 days during the project and would be operated only within the wind farm air space. ARM would also launch untethered weather balloons up to 4 times per day from existing ARM sites and site H.

UAS flights are planned for 2023 and specific details about the flights are not yet known. The University of Colorado-Boulder would conduct all flight activities. Flights would collect measurements of atmospheric conditions and would occur over a 45-day period during daylight hours. The flights would be in fully attended operating mode with continuous visual verification. Each flight would be up to 2.5 hours per day with up to three flights per day. Flight patterns would be in a racetrack shape approximately 1-2 km wide upwind and downwind of wind turbines in King Plains at heights within the rotor plane, from 25 meters to 155 meters above ground level (AGL). Other flights could be up to 60 km in range and at heights of up to 700 meters AGL. A NEPA review for these flights would be conducted when additional details are known.

PROJECT DURATION
Equipment installation would begin in the spring of 2022 and would be deployed through the fall of 2023. Once complete, all equipment, cable, conduit, concrete and gravel pads, enclosures, and fencing would be removed.

CULTURAL RESOURCES
There are 32 cultural resources listed on the National Register of Historic Places in Garfield County, and 13 listed in Noble County. No visual impacts to these resources from the proposed project are anticipated in Garfield County due to the temporary nature of the project, that project equipment would be consistent with equipment currently in use at the wind farms, and that intervening structures between the field sites and resource locations would obscure the equipment from view. No visual impacts to these resources are anticipated in Noble County as project equipment would not be in the viewshed of the resources.

THREATENED AND ENDANGERED SPECIES
There are five threatened or endangered species that could encounter the project area: the piping plover, red knot, Arkansas River shiner, monarch butterfly (candidate), and whooping crane. One species of conservation concern, red-headed woodpecker, could also encounter the project area. There is no designated critical habitat in the project area. The likelihood of the piping plover, red knot, Arkansas River shiner (fish species), and monarch butterfly encountering the wind turbine is low because the proposed project location does not contain suitable habitat for any these species, nor does the location contain suitable stopover habitat for these species. The red-headed woodpecker could encounter the project area in the month of June, but not during other times of the year. As such, the likelihood of adverse impacts to these species from project activities is not likely.

Whooping cranes pass through western Oklahoma during the spring (April) and fall (October) migration periods; they are not present in Oklahoma during other times of the year. Project activities were analyzed for potential adverse impacts to whooping cranes (met towers, tethered/mounted balloon, unmanned free balloon, and UAS flights). Each activity is analyzed below.

Met Towers: Guy wires present a collision risk to cranes. The USFWS has a whooping crane recovery plan and issued interim guidelines and recommendations for infrastructure that require guy wires to reduce the collision risk. Installation of the met towers would implement the guidelines to reduce the potential collision risk to the whooping crane and other migratory bird species that could encounter the project area. Specifically, all guy wires would incorporate visual markers and all tower lights would have flashing strobe lights rather than continuous lighting. Since the tower would follow USFWS guidelines for lighting and guy wires, impacts to these bird species are unlikely. Additionally, the USFWS IPAC tool was used to review the met activity and indicated that there would be no effect to threatened and endangered species and no effect to critical habitat within the project area.

Tethered/moored balloon (tethersonde): DOE's ARM program would launch tethered balloons at two of the field sites. Deployment would meet regulatory requirements under 14 CFR 101. ARM has completed a NEPA review for tethered balloon launches for deployments at the Southern Great Plains user facility and did not identify adverse impacts to species resulting from this activity.

Unmanned free balloon (radiosonde): An environmental assessment entitled "Environmental Assessment for the Atmospheric Radiation Measurement (ARM) Program: Southern Great Plains Cloud and Radiation Testbed (CART) Site" was completed in 1992 for ARM activities, including untethered balloon launches. The EA notes that the "FWS in Tulsa indicated that the project was not expected to affect any federally listed endangered or threated species in Oklahoma." The most recent supplemental assessment to the EA was completed in 2009 and this finding has not changed; as such, impacts to species from this activity are not anticipated.

UAS flights: CU-Boulder would conduct UAS flights in 2023, and flight details are not known at this time. DOE would complete a NEPA review for UAS flights once details are identified.

A migratory bird nesting survey shall be completed if project activities involving ground disturbance occur between March 15 and September 15. If nests or eggs are found, the area would be cordoned off with a proper buffer until nestlings fledge.

For these reasons, DOE has determined that the proposed project would have no effect on the threatened and endangered species, nor does DOE anticipate any adverse impacts to the red-headed woodpecker, or migratory birds.

ADDITIONAL IMPACTS
Air emissions resulting from vehicles and equipment operation would be de minimis. Project activities would not affect wetlands. The NRSC Soil Survey Mapping Tool indicated that the project area does include prime farmland; adverse impacts to prime farmland are not anticipated due to the temporary nature of the project. Noise would be emitted from the SODAR and UAS while in use, but the noise would be temporary and would not impact sensitive receptors. All ground disturbance would meet NREL construction stormwater requirements and appropriate erosion control measures would be deployed and maintained during and after the project. Any disturbed areas would be restored by removing the concrete or gravel and raking and reseeding the area.

The two new met towers would be lighted in accordance with FAA requirements and would meet USFWS requirements for color and strobe settings, as defined in their guidelines titled "Communications Tower Siting, Construction, Operation, and Decommissioning Recommendations, Service Interim Guidelines". An FAA Obstruction Evaluation would be completed prior to the installation the met towers. Regulatory requirements for UAS would be met, and the launches of radiosondes and tethersondes would meet regulatory requirements outlined in 14 CFR 101.

Individuals working on this project could be exposed to physical and electrical hazards. Existing corporate health and safety policies and procedures would be followed including employee training, proper protective equipment, engineering controls, and monitoring. Additional policies and procedures would be implemented as necessary if new health and safety risks are identified.

NEPA PROVISION

DOE has made a final NEPA determination.

Include the following condition in the financial assisstance agreement:

Any work proposed to be conducted at a federal facility may be subject to additional NEPA review by the cognizant federal official and must meet the applicable health and safety requirements of the facility.

A migratory bird nesting survey shall be completed if project activities involving ground disturbance occur between March 15 and September 15. If nests or eggs are found, the area would be cordoned off with a proper buffer until nestlings fledge.

All required permissions shall be obtained prior to commencing project activities.

Further NEPA review shall occur for CY2023 activities once details are known.

Notes:

NREL
Completed by Nicole Serio 2/10/2022

FOR CATEGORICAL EXCLUSION DETERMINATIONS

The proposed action (or the part of the proposal defined in the Rationale above) fits within a class of actions that is listed in Appendix A or B to 10 CFR Part 1021, Subpart D. To fit within the classes of actions listed in 10 CFR Part 1021, Subpart D, Appendix B, a proposal must be one that would not: (1) threaten a violation of applicable statutory, regulatory, or permit requirements for environment, safety, and health, or similar requirements of DOE or Executive Orders; (2) require siting and construction or major expansion of waste storage, disposal, recovery, or treatment facilities (including incinerators), but the proposal may include categorically excluded waste storage, disposal, recovery, or treatment actions or facilities; (3) disturb hazardous substances, pollutants, contaminants, or CERCLA-excluded petroleum and natural gas products that preexist in the environment such that there would be uncontrolled or unpermitted releases; (4) have the potential to cause significant impacts on environmentally sensitive resources, including, but not limited to, those listed in paragraph B(4) of 10 CFR Part 1021, Subpart D, Appendix B; (5) involve genetically engineered organisms, synthetic biology, governmentally designated noxious weeds, or invasive species, unless the proposed activity would be contained or confined in a manner designed and operated to prevent unauthorized release into the environment and conducted in accordance with applicable requirements, such as those listed in paragraph B(5) of 10 CFR Part 1021, Subpart D, Appendix B.

There are no extraordinary circumstances related to the proposed action that may affect the significance of the environmental effects of the proposal.

The proposed action has not been segmented to meet the definition of a categorical exclusion. This proposal is not connected to other actions with potentially significant impacts (40 CFR 1508.25(a)(1)), is not related to other actions with individually insignificant but cumulatively significant impacts (40 CFR 1508.27(b)(7)), and is not precluded by 40 CFR 1506.1 or 10 CFR 1021.211 concerning limitations on actions during preparation of an environmental impact statement.

A portion of the proposed action is categorically excluded from further NEPA review. The NEPA Provision identifies Topic Areas, Budget Periods, tasks, and/or subtasks that are subject to additional NEPA review.

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature: Electronically Signed By: Lisa Jorgensen Date: 2/11/2022
NEPA Compliance Officer

FIELD OFFICE MANAGER DETERMINATION

☑ Field Office Manager review not required
☐ Field Office Manager review required

BASED ON MY REVIEW I CONCUR WITH THE DETERMINATION OF THE NCO :

Field Office Manager's Signature: _____ Date: _____
Field Office Manager