

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



**RECIPIENT:** NREL

**STATE:** CO

**PROJECT TITLE :** NREL-22-006 2021 Distributed Wind Turbine Competitiveness Improvement Project – XFlow Energy Company Prototype Testing

<b>Funding Opportunity Announcement Number</b>	<b>Procurement Instrument Number</b>	<b>NEPA Control Number</b>	<b>CID Number</b>
	DE-AC36-08GO28308	NREL-22-006	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.

Rationale for determination:

The U.S. Department of Energy's (DOE) National Renewable Energy Laboratory is proposing to provide federal funding to XFlow Energy Company to install and test a prototype distributed wind turbine. The proposed project is part of the DOE Wind Energy Technologies Office 2021 Competitiveness Improvement Project (CIP) which seeks to support small businesses that design and manufacture small or medium wind turbine technology.

**PROTOTYPE INSTALLATION**

XFlow Energy Company would install a 25kW prototype distributed wind turbine at the Windward Engineering test site located at 3815 E Highway 6 in Spanish Fork, UT. Installation activities are funded by a National Science Foundation SBIR/STTR Phase II award, which covers transportation, installation, and initial testing of the turbine prior to the start of this CIP funded work.

The prototype is a 25kW, three-bladed, H-rotor vertical-axis wind turbine. It is approximately 23 meters in hub height and has an approximately 10.54-meter rotor diameter. The prototype would be installed on an existing 21-meter-tall monopole tower, and no guy lines would be required. If required, new electrical hookups would be made utilizing the existing conduits. The turbine would be installed in January 2022.

**TESTING AND DISSASSEMBLY**

Once installed, data would be collected from the prototype turbine including power performance measurements, acoustics measurements, and load measurements. Instruments that would be installed include anemometry equipment, power transducers, strain gauges (which would be installed on the rotor blades and critical joints), accelerometers (which would be installed on the rotor and nacelle), and associated data acquisition systems.

Prototype testing would begin in either January or February of 2022. The prototype would be tested up to 24 months. Once testing is complete, the prototype would be removed and the previously installed tower would remain for future testing.

**CULTURAL RESOURCES**

There are 177 historical, archaeological, or cultural resources located in Utah County, UT that are on the National Register of Historic Places which are mostly comprised of historic buildings and houses. The proposed project is unlikely to adversely affect these resources because the area is developed, and the proposed project location is an existing wind turbine testing facility. The addition of one turbine for testing would not alter the viewshed from its existing state.

## WILDLIFE

The U.S. Fish and Wildlife Service's Information for Planning and Consultation (IPaC) tool was used and identified no endangered species, three threatened species, and nine migratory birds that could occur in the proposed project area. There are no critical habitats in the project area. The three threatened species include the Yellow-billed Cuckoo bird, June Sucker fish, and the Ute Ladies'-tresses flower. The nine migratory birds that could encounter the project include the Bald Eagle, Cassin's Finch, Clark's Grebe, Evening Grosbeak, Lewis's Woodpecker, Long-eared Owl, Olive-sided Flycatcher, Rufous Hummingbird, and Willet. Potential impacts to these and other species found in the project area include temporary displacement of wildlife during construction and bird collisions with the tower or turbine blades. Because the turbine tower is un-guyed, the risk of collision with the turbine is greatly reduced. Noise would be generated by the operation of the turbine, but the impact to wildlife from this level of noise is not expected to have an adverse effect as it is likely that wildlife has become habituated to noise in the area due to other wind turbine testing operations in the immediate project vicinity.

A previous NEPA determination for this testing site was completed by DOE to establish a regional testing center at the existing turbine testing facility in conjunction with Windward Engineering (please see NEPA Control Number: NREL-10-027; signed by the DOE NEPA Compliance Officer on 9/2/2010). DOE initiated informal consultation with U.S. Fish & Wildlife Service in accordance with Section 7 of the Endangered Species Act, the Migratory Bird Treaty Act, and the Golden and Bald Eagle Protection Act on 6/21/2010. USFWS concurred with DOE's determination on 8/24/2010 that the proposed project would not likely adversely effect the listed species in Utah County. Furthermore, Windward would continue to conduct their informal monitoring of the site.

## ADDITIONAL RESOURCES

The proposed project would not affect wetlands, floodplains, or prime farmland. The proposed location is approximately 6 miles away from the Spanish Fork-Springville Airport, however the proposed project would not be subject to FAA restrictions as the structure would not exceed 150 feet nor is the site within an airport approach zone. All proposed testing activities would occur at facilities that perform such work. No change in the use, mission, or operation of existing facilities would result from the proposed project. All waste generated would be reused, recycled, or disposed of in accordance with local municipal solid waste disposal requirements. Mobile air emissions would be de minimis. Noise impacts would consist of a short-term, intermittent increase in ambient noise levels. Noise generated during testing would not affect sensitive wildlife or human receptors.

Individuals working on this project could be exposed to physical and electrical hazards during the project. Existing corporate health and safety policies and procedures would be followed including employee training, work/worker authorization, proper protective equipment, engineering controls, and monitoring.

## NEPA PROVISION

DOE has made a final NEPA determination.

Include the following condition in the financial assistance agreement:

All required permits, notifications, and permissions shall be obtained prior to commencing work.

Notes:

NREL  
Nicole Serio, 11/15/2021

## 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.

The proposed action is categorically excluded from further NEPA review.

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

NEPA Compliance Officer Signature:  **Electronically Signed By: Lisa Jorgensen** \_\_\_\_\_ Date: 11/19/2021  
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