

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



RECIPIENT: NREL

STATE: CO

PROJECT TITLE : NREL-23-006 XFlow Energy Turbine Testing CIP – Spanish Fork, UT

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
	DE-AC36-08GO28308	GFO-NREL-23-006	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 to complete system optimization of its 25 KW vertical-axis wind turbine. The proposed project is part of the DOE Wind Energy Technologies Office 2022 Competitiveness Improvement Project (CIP) which seeks to support small businesses that design and manufacture small or medium wind turbine technology.

**PROTOTYPE INSTALLATION**

The prototype turbine is a three-bladed, 25 kW H-rotor vertical axis wind turbine that has a rotor diameter of 13.4 meters, a rotor swept area of 180 meters squared, and a hub height of 16.5 meters.

Subassembly of the turbine would take place at the XFlow Energy facility located in Seattle, Washington. Actions that would occur include glue up of the blade and support arms, assembly of the drivetrain, and installation these components into the nacelle.

The turbine would be installed and operated at the Windward Engineering test site. This site is a regional testing center and is located in Spanish Fork, Utah. The turbine would be transported to the site from the Seattle facility via truck. Once on site, the turbine would be installed on an existing tower and foundation. The nacelle would be installed on the tower using a crane, and a crane would also be used to lift the blades into place in the hub. A total of 6 guy wires would be used once installed. Project activities would begin in the spring of 2023.

**CERTIFICATION TESTING AND DISSASSEMBLY**

Testing of the prototype would occur over a period of approximately 12 months. Once testing is complete, the prototype would be removed and the site and tower bases returned to the facility for further use.

**ANALYSIS**

**XFLOW ENERGY FACILITY**

Subassembly of the turbine would occur within a dedicated facility that performs such work. Activities at this location would not impact environmental resources.

**SPANISH FORK TEST FACILITY**

**CULTURAL RESOURCES**

There are 178 historical, archaeological, or cultural resources located in Utah County, UT that are on the National Register of Historic Places; the resources 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 at the site would not alter the viewshed from its existing state.

#### WILDLIFE

The U.S. Fish and Wildlife Service's Information for Planning and Consultation 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, the Monarch butterfly, and the Ute Ladies'-tresses flowering plant. There are 15 migratory birds within the proposed project area. 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, turbine blades, and guy lines. The short duration of certification testing would minimize the potential for collisions. 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 location was completed by DOE to establish a regional testing center at the existing 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 affect 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. Although the Spanish Fork Test Facility is approximately 6 miles away from the Spanish Fork-Springville Airport, 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.

Notes:

NREL  
1/25/2023

#### 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: 1/25/2023  
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