MC-ND	U.S. DEPARTMENT OF ENERGY
1.08.09.13)	OFFICE OF ENERGY EFFICIENCY AND RENEWABLE ENERGY
	NEPA DETERMINATION



### **RECIPIENT: University of Massachusetts Lowell**

#### STATE: MA

PROJECT	Development of an Acoustics-based Automated Offshore Wind Turbine Blade Structural Health
TITLE:	Monitoring System

Funding Opportunity Announcement NumberProcurement Instrument NumberNEPA Control NumberCID NumberDE-FOA-0002071DE-EE0008968GFO-0008968-001

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:

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.)
B3.6 Small- scale research and development, laboratory operations, and pilot projects	Siting, construction, modification, operation, and decommissioning of facilities for smallscale research and development projects; conventional laboratory operations (such as preparation of chemical standards and sample analysis); and small-scale pilot projects (generally less than 2 years) frequently conducted to verify a concept before demonstration actions, provided that construction or modification would be within or contiguous to a previously disturbed or developed area (where active utilities and currently used roads are readily accessible). Not included in this category are demonstration actions, meaning actions that are undertaken at a scale to show whether a technology would be viable on a larger scale and suitable for commercial deployment.

Rationale for determination:

The U.S. Department of Energy (DOE) is proposing to provide funding to University of Massachusetts Lowell (UMass) to develop and test an acoustic based wind turbine blade health monitoring system.

UMass would design and produce wireless acoustic nodes for testing throughout this project. Nodes would be composed of an electronic board and an acoustic sensor, within a 3D printed sensor enclosure. The acoustic nodes would be passive instruments which record sound but do not make sound. Once produced UMass would lead three tests of the acoustic nodes. Work at UMass would occur at the university dedicated laboratory and office facilities.

First, acoustic nodes would be attached to a wind turbine test blade undergoing fatigue testing at the Massachusetts Clean Energy Center's Wind Technology Testing Center in Charlestown, MA. This test would consist of an approximate three month blade test. The Wind Technology Testing Center is a pre-existing wind blade testing facility.

Second, acoustic nodes would be installed on several wind turbine blades of existing operational wind turbines at the National Renewable Energy Lab wind test center on the Flatirons Campus in Boulder, CO.

Third, acoustic nodes would be installed on the blades of several turbines at the Pattern Energy Logan's Gap Wind facility in Blanket, TX. These would be installed on existing turbines with known blade conditions, from healthy to damaged.

After each test UMass would analyze results from testing and utilize data in designing the next test.

No new permits would be required. No modifications to any facilities would be required, with the exception of installing the acoustic nodes onto existing blades. Installation would occur using a gluing agent. All three test locations are preexisting facilities. No new wind turbines would be erected for this project. Work at all three facilities, as well as at UMass, will follow existing corporate health and safety practices, including training and proper protective equipment.

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.

# NEPA PROVISION

DOE has made a final NEPA determination.

Notes:

Wind Energy Technologies Office This NEPA determination does not require a tailored NEPA provision. Review completed by Roak Parker, 3/27/2020

# 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:

Roak Parker NEPA Compliance Officer

Date: 3/27/2020

# 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:

Field Office Manager

Date: