

PMC-ND

(1.08.09.13)

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

**RECIPIENT:** University of Michigan**STATE:** MI

**PROJECT TITLE:** Robot-based Additive Manufacturing of Lego-type Modular Molds for Wind Blades

<b>Funding Opportunity Announcement Number</b>	<b>Procurement Instrument Number</b>	<b>NEPA Control Number</b>	<b>CID Number</b>
DE-FOA-0002252	DE-EE0009402	GFO-0009402-001	

**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 is proposing to provide funding to the University of Michigan in support of a project that aims to reduce the cost and lead time of horizontal wind turbine blade mold tooling and blade transportation without sacrificing blade quality. The project would address a critical challenge of large wind turbine blade production (costs of tooling and transport) by demonstrating a modularized mold (at 1:100 and 1:20 scale), fabricated with additive manufacturing, that meets specification requirements for blade lengths between 120m and 150m.

This project would be completed over 3 budget periods (BPs). BP 1 would focus on modular mold design evaluation and developing process specifications. BP 1 tasks would include modular mold design and analysis, modular mold fabrication processes and assembly, surface finish and quality assurance, and analysis of market benefits and process commercialization. BP 2 would focus on process development for modular mold fabrication. BP 2 tasks would include the continuation of BP 1 tasks, plus mold prototype fabrication and scaling-up module size from 1:100 to 1:20. BP 3 would focus on modular mold prototyping and quality assessment. BP 3 tasks would include the continuation of BP 1 and 2 tasks and final reporting.

Project activities would include the design, development, fabrication, and field testing of 3D printed Aluminum molds. The project would involve the use and handling of limited hazardous materials, such as metal etching solutions. All such handling would occur in-lab and follow proper hazardous material handling and disposal practices. All hazardous materials would be managed in accordance with Federal, state, and local environmental regulations.

All locations where work would be completed are purpose-built and would not require any physical modification or change in the use, mission, or operation of existing facilities. DOE does not anticipate adverse impacts to any sensitive resources as a result of this project.

**NEPA PROVISION**

DOE has made a final NEPA determination.

Notes:

[Advanced Manufacturing Office](#)

[This NEPA Determination does not require a tailored NEPA provision.](#)

#### 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: Kristin Kerwin**  
NEPA Compliance Officer

Date: 5/10/2021

#### 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: \_\_\_\_\_