

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



RECIPIENT: Professor Lei Zuo, at University of Michigan

STATE: MI

PROJECT TITLE : A Universal Hardware-in-the-Loop Platform for WEC, Power Take-Off and Control Tests

Notice of Funding Opportunity Number
DE-FOA-0003097

Procurement Instrument Number
DE-EE0011687

NEPA Control Number
GFO-0011687-001

CID Number
GO11687

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:

B1.31 Installation or relocation of machinery and equipment

Installation or relocation and operation of machinery and equipment (including, but not limited to, laboratory equipment, electronic hardware, manufacturing machinery, maintenance equipment, and health and safety equipment), provided that uses of the installed or relocated items are consistent with the general missions of the receiving structure. Covered actions include modifications to an existing building, within or contiguous to a previously disturbed or developed area, that are necessary for equipment installation and relocation. Such modifications would not appreciably increase the footprint or height of the existing building or have the potential to cause significant changes to the type and magnitude of environmental impacts.

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 federal funding to the University of Michigan (UM) to design, develop, fabricate, construct and test a universal hardware-in-the-loop platform for wave energy converter power take-off and control tests.

A permanent testing platform would be constructed in the Aaron Friedman Marine Hydrodynamics Laboratory at UM, in Ann Arbor, MI. Platform control system modeling and design as well as software system integration would occur at Sandia National Laboratories (SNL) in Albuquerque, NM.

Potential hazards include machining and assembly work, which would require operating tools and operation of a high-power electric motor and drive system. Mitigation activities would follow existing institutional health and safety policies, including mandatory employee training, use of appropriate personal protective equipment, and adherence to standard safety procedures. Testing protocols with safety protocols would be developed specifically for this project. Testing sites would implement engineering controls such as equipment guards, lockout/tagout protocols, and emergency shut-off mechanisms. Regular safety audits and risk assessments would be conducted to identify and address any new hazards. Compliance with federal, state, and local health and safety regulations would be maintained throughout the project to ensure the safety of all personnel.

While the project would include the installation of a universal hardware-in-the-loop platform at UM, no ground disturbance, outdoor modifications or equipment retrofits would occur, and no permits would be required for this project award.

DOE has considered the scale, duration, and nature of proposed activities to determine potential impacts on resources, including those of an ecological, historical, cultural, and socioeconomic nature. DOE does not anticipate impacts on these resources which would be considered significant or require DOE to consult with other agencies or stakeholders.

For Categorical Exclusion Determinations:

- The proposal fits within a class of actions that is listed in Appendix B to 10 CFR Part 1021 or Appendix B and C of DOE's NEPA Implementing Procedures (June 30, 2025). To fit within the classes of actions listed in Appendix B to 10 CFR Part 1021, or Appendix B of DOE's NEPA Implementing Procedures, a proposal must satisfy the conditions that are integral elements of the classes of actions in Appendix B of both 10 CFR Part 1021 and DOE's NEPA Implementing Procedures.

- 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.

- The proposed action is categorically excluded from further NEPA review.

NEPA PROVISION

DOE has made a final NEPA determination.

Notes:

Water Power Technologies Office
NEPA review completed by Chris Akios, 10/20/2025

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature: _____

 Electronically
Signed By: Nicole Serio
NEPA Compliance Officer

Date: 10/20/2025

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: _____