

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



RECIPIENT: University of New Hampshire

STATE: NH

PROJECT TITLE : Design, testing, and evaluation of an oscillating water column energy converter system for integration with marine aquaculture systems

Notice of Funding Opportunity Number
DE-FOA0003097

Procurement Instrument Number
DE-EE0011691

NEPA Control Number
GFO-0011691-001

CID Number

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:

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.

B3.16 Research activities in aquatic environments

Small-scale, temporary surveying, site characterization, and research activities in aquatic environments, limited to: (a) Acquisition of rights-of-way, easements, and temporary use permits; (b) Installation, operation, and removal of passive scientific measurement devices, including, but not limited to, antennae, tide gauges, flow testing equipment for existing wells, weighted hydrophones, salinity measurement devices, and water quality measurement devices; (c) Natural resource inventories, data and sample collection, environmental monitoring, and basic and applied research, excluding (1) large-scale vibratory coring techniques and (2) seismic activities other than passive techniques; and (d) Surveying and mapping. These activities would be conducted in accordance with, where applicable, an approved spill prevention, control, and response plan and would incorporate appropriate control technologies and best management practices. None of the activities listed above would occur within the boundary of an established marine sanctuary or wildlife refuge, a governmentally proposed marine sanctuary or wildlife refuge, or a governmentally recognized area of high biological sensitivity, unless authorized by the agency responsible for such refuge, sanctuary, or area (or after consultation with the responsible agency, if no authorization is required). If the proposed activities would occur outside such refuge, sanctuary, or area and if the activities would have the potential to cause impacts within such refuge, sanctuary, or area, then the responsible agency shall be consulted in order to determine whether authorization is required and whether such activities would have the potential to cause significant impacts on such refuge, sanctuary, or area. Areas of high biological sensitivity include, but are not limited to, areas of known ecological importance, whale and marine mammal mating and calving/pupping areas, and fish and invertebrate spawning and nursery areas recognized as being limited or unique and vulnerable to perturbation; these areas can occur in bays, estuaries, near shore, and far offshore, and may vary seasonally. No permanent facilities or devices would be constructed or installed. Covered actions do not include drilling of resource exploration or extraction wells.

Rationale for determination:

The U.S. Department of Energy (DOE) is proposing to provide federal funding to the University of New Hampshire (UNH) to design, develop, and characterize an attachment strategy for an Oscillating Water Column (OWC) system to provide power for an active aquaculture system.

Active tank testing, numerical modeling simulation, and data analysis would occur at the UNH's Chase Ocean Engineering Laboratory in Durham, NH. Deployment preparation of field vessels associated with system would occur at UNH's Judd Marine Research Complex and the nearby Pier Operations Facility. Both locations are in New Castle, NH. The deployment of the OWC would occur at UNH's existing Aquaculture Site in New Castle, NH. Design, physical modeling, and data processing activities would occur at the United States Naval Academy's (USNA) Hydrodynamics Laboratory in Annapolis, MD. The modification of power communication data acquisition systems would occur at Woods Hole Group's Engineering Laboratory in Bourne, MA.

DEPLOYMENT

The vessel deployment of the OWC would occur at the University of New Hampshire Operations Facility located in

New Castle, New Hampshire. Transit distance from the UNH Operations Facility to the Aquaculture Site is approximately 1-kilometer.

The OWC prototype assembly is approximately 1.2 meters-long, 1.2 meters-wide, and 2.5 meters-high. The 286-pound prototype consists of: 1) a generator and power take off (PTO) connected to an internal air turbine situated above the water line, 2) a square surge chamber composed of marine-grade plywood, and 3) a ballast weight.

The OWC deployment would occur in June 2027 for a period of one month. All installed project materials, including the OWC and the OWC mooring would be removed at the conclusion of the exercise.

The OWC would be secured to the Aquaculture Site via an elastic tether, and the OWC PTO would be connected to a data acquisition system located on the Aquaculture Site's platform. A wave-spotter buoy would also be deployed adjacent to the OWC to collect ambient wave data. The mooring system securing the OWC would consist of: 1) a sailboat anchor, 2) 9.1 meters of long link chain catenary, 3) 18.3 meters of 1.3 centimeter-diameter nylon mooring line connected to a 0.61-meter spherical mooring buoy, and 4) 2.7 meters of elastic tether set to a spring constant of 377 Newtons/meter.

IMPACTS ANALYSIS

The US Fish and Wildlife Service's Information for Planning and Consultation (IPaC) website identified three listed species, including two birds and one insect that may occur within the project site.

- The roseate tern (federally threatened)
- The rufa red knot (federally endangered)
- The monarch butterfly (federal candidate species)

Through the use of the appropriate determination key for the Northeast United State, it was found that Section 7 Endangered Species Act consultation was not required, as a no effect determination was provided through the IPaC system for all listed species under the jurisdiction of the USFWS.

Endangered species under the marine jurisdiction of the National Marine Fisheries Service (NMFS) include four reptiles and one fish within the project site.

- Green sea turtle (federally threatened)
- Kemp's ridley sea turtle (federally endangered)
- Leatherback sea turtle (federally endangered)
- Loggerhead sea turtle (federally threatened)
- Atlantic sturgeon (federally endangered)

DOE initiated formal consultation with NMFS on May 11th, 2026 to comply with Section 7 of the Endangered Species Act and the Magnuson-Stevens Act. NMFS concurred with DOE's determination that the proposed project may affect, but is not likely to adversely affect, threatened and endangered species or critical habitats in a letter dated June 4th, 2026.

Any and all permits, authorizations, or approvals required for the execution of the project (including those related to Section 404 of the Clean Water Act) at the above-referenced locations would be the responsibility of the recipient. The recipient is required to inform the pertinent permit-issuing agencies ahead of the field demonstration of the OWC at the UNH Aquaculture Site, including the US Coast Guard.

Potential hazards include moving machinery and heavy equipment and in-water, sea operations. 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. The field testing site 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. The recipient would adhere to all applicable federal, state, and local health, safety, and environmental regulations.

Any changes to the project activities or locations are subject to additional NEPA review by DOE and are not authorized for federal funding unless and until the Contracting Officer provides written authorization on those additions or modifications.

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.

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:

Water Power Technologies Office
NEPA review completed by Chris Akios, 6/11/2026

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 10CFR 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.

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature: _____

 Electronically
Signed By: **Nicole Serio**
NEPA Compliance Officer

Date: 6/11/2026

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: _____