

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



RECIPIENT: University of New Hampshire

STATE: NH

PROJECT TITLE : Novel Composite Turbine Blade Testing and Validation using the OSTEC Test Bed at the AMEC-UNH Tidal Energy Test Site

Notice of Funding Opportunity Number
FOA DE-EE0003097

Procurement Instrument Number
DE-EE0011704

NEPA Control Number
GFO-0011704-001

CID Number
GO11704

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.

B5.25 Small-scale renewable energy research and development and pilot projects in aquatic environments

Small-scale renewable energy research and development projects and small-scale pilot projects located in aquatic environments. Activities would be in accordance with, where applicable, an approved spill prevention, control, and response plan, and would incorporate appropriate control technologies and best management practices. Covered actions would not occur (1) within areas of hazardous natural bottom conditions or (2) 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, use of large-scale vibratory coring techniques, or seismic activities other than passive techniques.

Rationale for determination:

The U.S. Department of Energy (DOE) is proposing to provide federal funding to University of New Hampshire (UNH) to design, develop, fabricate, and test composite blade designs both in-lab and at the Atlantic Marine Energy Center (AMEC) Tidal Energy Test Site using the Open-Source Tidal Energy Converter (OSTEC) test bed.

PROJECT DESCRIPTION

Award activities would include laboratory assembly and dry testing of blades, rotor, and turbine at UNH (Durham, NH). Composite blades and additional laboratory testing would be carried out at the National Laboratory of the Rockies (Arvada, CO). Additional analytical and intellectual desktop-based activities would be carried out by Sandia National Laboratories (Albuquerque, NM).

In-water testing would be carried out at UNH's Tidal Energy Test Site at Memorial Bridge (Portsmouth, NH). This is an existing purpose-built test site in an estuary on the Piscataqua River in the Great Bay Estuary. Testing would occur on Pier #2 of the Memorial Bridge on an existing Turbine Deployment Platform (TDP). The Memorial Bridge site is located in the Piscataqua River at Portsmouth, New Hampshire with the entrance to Great and Little Bays and the General Sullivan Bridge located approximately 4 miles upstream, and the Atlantic Ocean downstream. The water depth in the center of the channel at the Memorial Bridge is about 20 meters. Two 22-foot tall vertical guide posts (VGP) made of 16-inch steel pipes are anchored to the pier cap. The TDP is attached to the VGPs via pile guides, which can be deployed and removed. The OSTEC Turbine with the composite blades manufactured for this award would be

deployed from the platform.

Existing pier operations at the UNH Marine Facilities and Pier (New Castle, NH) would provide staging for open water research, docking vessels and floating platforms, storage, and transfer of personnel and equipment. The TDP would also be docked here for maintenance and turbine installation. Some dry and in-water testing may also occur at the UNH Marine Facilities and Pier.

IMPACTS ANALYSIS

UNH Prepared a Programmatic Biological Assessment (BA) using the UNH Tidal Energy Test Site for recurring testing of tidal energy converters within certain parameters. DOE determined that such deployments would not likely adversely affect (NLAA) threatened or endangered species or their critical habitats and would not effect essential fish habitat. On February 11, 2026, the National Marine Fisheries Service (NMFS) concurred with the DOE's determination that the activities carried out in the BA are not likely to affect any Endangered Species Act listed species or designated critical habitat under their jurisdiction.

Connected to the Programmatic BA, a Verification Form was established. This needs to be completed for each project to verify that the project activities are within the range of activities described in and bounds established by Programmatic BA. The Verification Form for OSTEC was signed by NMFS on March 9, 2026.

Hazards would include handling of laboratory equipment and materials, experimental facilities, transferring from to and from land and boats, use of cranes, and working in a marine environment. Existing health and safety policies and procedures set forth by UNH's Environmental Health and Safety (EHS) office would be followed.

DOE has considered potential impacts on resources, including those of an ecological, historical, cultural, and socioeconomic nature. DOE does not anticipate impacts on these resources that would be considered significant or require DOE to further consult with agencies or stakeholders.

NEPA PROVISION

DOE has made a final NEPA determination.

Notes:

Water Power Technologies Office (WPTO)
NEPA review completed by Alex Colling on 04/13/2026.

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: 4/13/2026

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: _____