

PMC-ND

(1.08.09.13)

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

**RECIPIENT:** University of New Hampshire**STATE:** NH

PROJECT TITLE: An Atlantic Marine Energy Center (AMEC) for Advancing the Marine Renewable Energy Industry and Powering the Blue Economy

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0002234	DE-EE0009450	GFO-0009450-001	

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.)

A11 Technical advice and assistance to organizations Technical advice and planning assistance to international, national, state, and local organizations.

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.

B5.15 Small-scale renewable energy research and development and pilot projects Small-scale renewable energy research and development projects and small-scale pilot projects, provided that the projects are located within a previously disturbed or developed area. Covered actions would be in accordance with applicable requirements (such as local land use and zoning requirements) in the proposed project area and would incorporate appropriate control technologies and best management practices.

Rationale for determination:

The U.S. Department of Energy (DOE) is proposing to provide funding to University of New Hampshire (UNH) to lead a university led consortium which would include UNH, Stony Brook University (SBU), Lehigh University (LU) and the Coastal Studies Institute (CSI; administered by East Carolina University) to establish the Atlantic Marine Energy Center (AMEC). The purpose of the funding is to help develop AMEC, including establishing an organizational structure and participants, developing research capabilities, including both laboratory and field research, and conducting both laboratory and field research.

The proposed project is divided into two Budget Periods (BP). BP 1 would include nine (9) tasks. This review is for tasks 1 through 3, 5 through 8, and part of task 9 in BP 1. There is not enough information available at this time to meaningfully evaluate tasks 4 and subtasks 9.4 and 9.5, as well as all tasks in BP2. As such, those tasks will be restricted until additional information is presented and a NEPA review can be completed.

In tasks 1-3 the universities involved would take initial steps to establish AMEC. This would include developing a charter, establishing an advisory board, reaching out to potential industry and other stakeholder partners, developing a stakeholder outreach plan, seeking input from stakeholders regarding future research needs, establishing communication systems for communicating with stakeholders, and developing a workforce and education plan. All activities in tasks 1 through 3 would be academic and planning in nature and would include information gathering, holding informational meetings, conducting outreach, and preparing websites, plans and other documents.

Task 4, which would include 9 subtasks, would include conducting a variety of upgrades to existing research laboratories as well as the conducting of some initial research. There is not enough information at this time to meaningfully evaluate the proposed research upgrades and proposed research. Recipient universities will need to present additional information on proposed upgrades prior to NEPA review. As such, Task 4 is restricted at this time.

Task 5 would consist of planning and permitting activities. Specifically, universities would identify and begin the process of obtaining all necessary permits for establishment or upgrade of open ocean testing facilities, including the UNH Memorial Bridge, Jennette's Pier, and the UNH Open Ocean Test Site. Work would also include completing any necessary work to complete a NEPA review of the proposed establishment or upgrade of open ocean testing facilities. As all facilities would be in the open ocean environment, work at the facilities, including testing, would have the potential to impact Endangered Species Act listed species, Essential Fish Habitat, and marine mammals. As such, work under this task would include the universities obtaining and presenting to DOE additional information, including any information or evaluations necessary to engage in consultations, if necessary.

Task 6 would involve creating numerical models to help evaluate potential field sites. Detailed hydrodynamic models would be created for potential field sites, including the entire Great Bay Estuary. All work under this task will be limited to computer modeling. No field work or field data gathering would take place.

Task 7 would involve creating computer models to track potential environmental impacts that marine and hydrokinetic devices have on sediment within waterways. Models would attempt to predict factors such as particle dispersion, salinity and temperature distributions, and natural transport of materials within a system. All work under this task will be limited to computer modeling. No field work or field data gathering would take place.

Task 8 would include developing models to predict site specific water flows around marine hydrokinetic turbines. The work would include utilizing site specific data to simulate real world water flow to optimize turbine placement. All work under this task will be limited to computer modeling. No field work or field data gathering would take place.

Task 9 would include assembly and testing of a wave energy converter by UNH. Task 9 would be divided into 4 subtasks. Under subtask 9.1 UNH would complete numerical and computer modeling. Under subtask 9.2 UNH would assemble the device and tank test it at the UNH Chase Ocean Engineering Lab. The device is a preexisting small scale wave energy converter. For this project UNH would reassemble the preexisting device adding several new components such as a new power take off. All assembly would be completed at UNH in the Chase Engineering Lab. The device would then be tested at the preexisting labs test tanks. These tanks regularly conduct tests of this type. Under subtask 9.3 UNH would review permitting and NEPA requirements for proposed testing of the device at a near shore site at the UNH Shoals Marine Lab. Work under subtask 9.3 would be limited to information gathering and data analysis. Under subtask 9.4 UNH would test the device at the Shoals Marine Lab. Testing at the marine lab is dependent upon obtaining necessary permits and completing necessary NEPA review in subtask 9.3. This would include production by UNH of any necessary environmental analysis of impacts to marine species, and production of a Biological Assessment, if necessary, for consultation. As such, there is not enough information to meaningfully evaluate subtask 9.4. Under subtask 9.5 UNH would analyze data gathered from the field testing and redesign the system based on that data. This subtask is reliant upon subtask 9.4 and thus cannot be meaningfully evaluated at this time. Subtasks 9.4 and 9.5 are thus restricted until additional NEPA review can be completed.

Information gathering and data analysis type work would be conducted by UNH, SBU, LU and CSI at university or other office locations. Additional analytic work would be performed at Old Dominion University. Technical advice and other like assistance would be received from The National Renewable Energy Laboratory, Sandia National Laboratory, the Pacific Northwest National Laboratory, and the European Marine Energy Center. All such work would be conducted in office environments, or in computer laboratory environments. Existing university and corporate health and safety standards would be followed.

Assembly of the wave energy device in task 9 would include working with metals, plastics, composites and electrical components, and would utilize powered equipment. Testing would include work in and around water, a test tank. For all work in task 9 UNH would follow existing university health and safety procedures including use of protective equipment, requirements that no one work alone near the test tanks, and the use of personal floatation devices.

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 conditional NEPA determination.

The NEPA Determination applies to the following Topic Areas, Budget Periods, and/or tasks:

Budget Period 1:

Task 1.0 Establish AMEC

Task 2.0 Establish Stakeholder Outreach and Engagement Plan

Task 3.0 Education and Workforce Development Planning

Task 5.0 Accreditation Planning BP1

Task 6.0: Integrating waterway and tidal induced turbulence into MRE design by digital twinning at laboratory and field scales

Task 7.0: Assessing hydrodynamic impacts of single and multiple hydrokinetic units and tidal farms on the marine environment using laboratory, field, and numerical studies

Task 8.0: (MRE) Physics-based data-driven reduced-order models for site-specific optimization of MHK device arrays in tidal farms

Subtask 9.1 Review of prior work, initiate analytical and computer modeling

Subtask 9.2 Tank testing of existing WEC device in UNH Engineering Tank

Subtask 9.3 Permit review and NEPA consultation regarding temporary deployment at near-shoresite at Shoals Marine Lab

The NEPA Determination does not apply to the following Topic Area, Budget Periods, and/or tasks:

Budget Period 1:

Task 4.0 Infrastructures Upgrade and Capabilities Development

Subtask 9.4 Field testing of the Wave-powered pump off the UNH/Cornell Shoals Marine Lab on Appledore Island, Isles of Shoals.

Subtask 9.5 System redesign using lessons learned from the first year observations.

Budget Period 2:

All Tasks

Notes:

Water Power Technologies Office

This NEPA determination does require a tailored NEPA provision.

Review completed by Roak Parker, 08/20/2021

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.

DOE has determined that work to be carried out outside of the United States, its territories and possessions is exempt from further review pursuant to Section 5.1.1 of the DOE Final Guidelines for Implementation of Executive Order 12114; "Environmental Effects Abroad of Major Federal Actions."

A portion of the proposed action is categorically excluded from further NEPA review. The NEPA Provision identifies Topic Areas, Budget Periods, tasks, and/or subtasks that are subject to additional NEPA review.

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature: _____

 **Electronically Signed By: Roak Parker**
NEPA Compliance Officer

Date: 8/20/2021

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: _____