

PMC-ND

(1.08.09.13)

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

**RECIPIENT:** Oregon State University**STATE:** OR

PROJECT TITLE: Advanced Laboratory and Field Arrays (ALFA) for Marine Energy

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0001098	DE-EE0006816	GFO-0006816-003	GO6816

Based on my review of the information concerning the proposed action, as NEPA Compliance Officer (authorized under DOE Order 451.1A), 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.)

B3.16 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.

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 funding to Oregon State University and the Northwest National Marine Renewable Energy Center (NNMREC) for their Advanced Laboratory and Field Arrays (ALFA) project. The project's goal is to accelerate the development of next-generation arrays of wave energy conversion

(WEC) and tidal energy conversion (TEC) devices through a suite of field-focused R&D projects.

DOE completed two previous NEPA determination for this project (GFO-00006816-001, CX A9, B3.6, 12/17/2014 and GFO-00006816-002, CX B3.16, 06/17/2015). Those determinations reviewed Tasks 1-4, Subtasks 5.1 – 5.6 and Tasks 6 and 7. This review is for Subtask 5.7 as well as Task 8-11.

Subtask 5.7 would include testing of a cross flow turbine array in Lake Washington, Seattle, WA. Two cross flow turbines, each approximately 1 meter in diameter and 1.5 meters in height, would be mounted inside a gantry. The gantry would be a moveable steel frame which would be large enough to support the two turbines and could be lowered into and out of the water. The gantry and turbines would be loaded onto the University of Washington (UW) catamaran hulled research vessel, the RV Russel Light. Once on the vessel, the gantry and turbines would be lowered into the water and the vessel would then travel through Lake Washington at maximum speeds of 2 meters per second (4 knots). Tests would last up to four hours, and up to three test runs could be conducted. During these tests monitoring equipment would be included within the gantry, including optical cameras, acoustic cameras, and passive hydrophones, would observe the area around the turbines.

Task 8 would include developing a Set-Based Design approach and methodologies which WEC designers could use to design higher performance WECs. All work under this task would be limited to process development, design and computer modeling work.

Task 9 would include increasing access to lab and field testing for WEC devices by cataloging existing testing resources and by assessing industry testing needs. All work under this task would be analytical.

Task 10 would include 4 subtasks. Subtasks 10.1 and 10.3 would include field work to be performed in Sequim Bay, WA. The specific location of the work has not yet been determined. As such, there is not enough information available to review these two subtasks at this time.

Subtask 10.2 would include testing a single cross flow turbine to estimate the turbine velocity fields and evaluate the ability and range of sensors to identify collisions between fish and turbines. These tests would be conducted in Lake Washington in conjunction with the tests identified in Subtask 5.7. For Subtask 10.2 the gantry would include only one turbine and the monitoring equipment would also include a sonar and echosounder. Targets would be deployed around the gantry to determine range of sensors. Targets would be plastic shelled instruments and would not include live fish. Tests would include lowering the gantry into the water and traveling at speeds of up to 2 meters per second. Two tests of up to four hours each are possible.

Subtask 10.4 would include collision risk modeling and would be limited to analytical work.

Task 11 would include design and computer modeling to increase WEC performance and WEC Power Take-Off (PTO) performance in non-linear waves. All work under this task would be limited to analytical work.

Subtasks 5.7 and 10.2 would include work in Lake Washington located in Seattle, WA. Work would be conducted by UW staff using the RV Russel Light, a research vessel that is commonly used for this type of work. The RV Russel Light is located at the UW dock in Lake Washington. Three Threatened or Endangered Species (T&E species) listed under the Endangered Species Act (ESA) are found in Lake Washington. These include the Chinook Salmon, the Steelhead, and the Bull Trout. All three species are not permanent residents of Lake Washington, but rather can be found in the lake during spring migration. The US Army Corp of Engineers (USACE) has established a work window of July 16 through March 15, during which time the T&E species are not found in Lake Washington. Subtasks 5.7 and 10.4 would be conducted during the USACE work window. As such, these subtasks would have no effect to ESA listed species.

Based on the review of the proposal, DOE has determined Tasks 8, 9, and 11 as well as Subtasks 5.7, 10.2 and 10.4 of this proposal fit within the class of action(s) and the integral elements of Appendix B to Subpart D of 10 CFR 1021 outlined in the DOE categorical exclusion(s) selected above. DOE has also determined that: (1) there are no extraordinary circumstances (as defined by 10 CFR 1021.410(2)) related to the proposal that may affect the significance of the environmental effects of the proposal; (2) the proposal has not been segmented to meet the definition of a categorical exclusion; and (3) the proposal is not connected to other actions with potentially significant impacts, related to other proposals with cumulatively significant actions, or an improper interim action. Tasks 8, 9, 11 and Subtasks 5.7, 10.2, and 10.4 of this proposal are categorically excluded from further NEPA review.

NEPA PROVISION

DOE has made a conditional NEPA determination for this award, and funding for certain tasks under this award is contingent upon the final NEPA determination.

Insert the following language in the award:

You are restricted from taking any action using federal funds, which would have an adverse affect on the environment or limit the choice of reasonable alternatives prior to DOE/NNSA providing either a NEPA clearance or a final NEPA decision regarding the project.

Prohibited actions include:

[Subtask 10.1 Field Data Collection](#)

[Subtask 10.3 Behavioral Evaluation](#)

This restriction does not preclude you from:

[Subtask 5.7](#)

[Subtasks 10.2 and 10.4](#)

[Tasks 8, 9, 11](#)

If you move forward with activities that are not authorized for federal funding by the DOE Contracting Officer in advance of the final NEPA decision, you are doing so at risk of not receiving federal funding and such costs may not be recognized as allowable cost share.

Note to Specialist :

[Water Power Program](#)

[This NEPA determination requires a tailored NEPA provision](#)

[NEPA review completed by Roak Parker 7/26/18](#)

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature: _____

 **Electronically Signed By: Kristin Kerwin**
NEPA Compliance Officer

Date: 7/26/2018

FIELD OFFICE MANAGER DETERMINATION

Field Office Manager review required

NCO REQUESTS THE FIELD OFFICE MANAGER REVIEW FOR THE FOLLOWING REASON:

- Proposed action fits within a categorical exclusion but involves a high profile or controversial issue that warrants Field Office Manager's attention.
- Proposed action falls within an EA or EIS category and therefore requires Field Office Manager's review and determination.

BASED ON MY REVIEW I CONCUR WITH THE DETERMINATION OF THE NCO :

Field Office Manager's Signature: _____

Field Office Manager

Date: _____