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 :** Bi-Partisan Infrastructure Law (BIL) DOE Funding for Activities at the Pacific Marine Energy Center

| Funding Opportunity Announcement Number | Procurement Instrument Number | NEPA Control Number | CID Number |
|---|---|---|---|
| DNFA | DE-EE0011381 | GFO-0011381-001 | GO11381 |

**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. |
| **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. |
| **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 funding to Oregon State University (OSU) to support operations at the Pacific Marine Energy Center (PMEC). The DOE Water Power Technologies Office (WPTO) previously provided funding support for the establishment of four National Marine Energy Centers (NMECs) to increase marine energy research and development and bolster testing infrastructure. The PMEC is one of the four NMECs established under the program and includes OSU, the University of Washington (UW), and the University of Alaska, Fairbanks (UAF).

Tasks would be completed over a 60-month budget period. Proposed project activities would include marine energy short course development and implementation, PMEC strategy development and implementation, research and development (R&D) to support marine energy industry advancement, improvements to PMEC infrastructure, and community engaged research.

This ND applies only to Tasks 1, 2, 5, and 6 (all Subtasks) and Subtasks 3.1.1, 3.2.1, 3.2.3, 3.3.1, 3.3.3, 3.4-3.8, 3.9.1, 4.1, 4.2, and 4.3.1. DOE would complete an additional NEPA review for Subtasks 3.1.2 (field testing at Monterey Bay Aquarium Research Institute (MBARI)), 3.2.2 (field data collection at PacWave), 3.3.2 and 3.3.4 (turbine blade testing aboard R/V Russell Davis Light (RDL) in Lake Washington), and 3.9.2 (field data collection for studying collision risk of riverine salmon) when sufficient information is available to conduct a meaningful review.

Tasks 1 and 2 would include the development and implementation of a marine energy summer bootcamp, marine energy short course modules, and a strategic vision for PMEC. These activities would be completed in coordination with other NMECs. Tasks 5 and 6 would involve community engaged research, including development of a community engagement and benefits plan, and program performance reviews. All activities in Tasks 1, 2, 5, and 6 would be intellectual, academic, or analytical in nature.

Subtask 3.1.1 would include simulation and hardware integration for real-time wave prediction for wave energy converter (WEC) control. Subtask 3.2.1 would include development of a survey plan for data collection at PacWave. Subtask 3.2.3 would include Distributed Acoustic Sensing (DAS) desktop data processing. These activities would occur at office or laboratory spaces at UW, OSU, and MBARI. Subtasks 3.3.1 and 3.3.3 would involve laboratory testing, including flume experiments, to evaluate turbine blade performance at UW facilities.

Subtask 3.4 would involve the development of riverine turbine debris mitigation systems, which would include desktop R&D and field work at UAF's Tanana River Test Site (TRTS) in Nenana, AK. All activities other than field work would occur at the Alaska Center for Energy and Power in Fairbanks, AK. For the field work at TRTS, acoustic cameras would be used to detect woody debris in the current and inform turbine operations and mitigation measures. A floating turbine deployment platform would be modified to enable rapid retrieval of river turbines to avoid detected oncoming debris. Student-designed turbines would be tested both with and without the debris avoidance system.

UAF currently has all permits and authorizations in place for the proposed activities at TRTS, including permits with the Alaska Department of Natural Resources, Alaska Department of Fish and Game, and Army Corps of Engineers, and a land use agreement with the Nenana Native Council. These permits and agreements would be renewed or extended to cover the period of performance of this award. There are no federally listed species or habitats at TRTS.

Potential hazards at TRTS are boating or floating platform failures, line failure, and floating river debris. To mitigate these, all personnel would wear personal protective equipment when on the water and all boats would have secondary motors in the case of engine failure. All lines, gear and other equipment associated with the floating platform would be inspected prior to use and inspected weekly for signs of wear and tear along with being cleared of any debris daily. Existing university health and safety protocols would be followed.

Subtasks 3.5 through 3.8 would occur at purpose-built OSU facilities. Numerical modeling, analysis, design, development, and testing of a virtual simulation framework would occur at the O.H. Hinsdale Wave Research Laboratory (HWRL). Electronic circuit buildup, laboratory testing, and data analysis would take place at the Wallace Energy Systems and Renewables Facility (WESRF).

Subtask 3.9.1 would involve studying the collision risk of riverine salmon with deployed turbines, which would include desktop R&D conducted at the Alaska Center for Energy and Power. No field work would occur under this subtask.

Subtask 4.1 would involve infrastructure improvements at two OSU facilities (WESRF and HWLR). Activities would include the development of two motor-generator testbeds for testing and validating low and medium power autonomous wave energy converter systems.

Subtask 4.2 would involve infrastructure improvements at UW's Harris Hydraulics Laboratory. Activities would include the removal of existing experimental equipment and re-routing of electrical and plumbing to accommodate new

equipment, followed by the installation of an overhead gantry crane and wave basin.

Subtask 4.3 would involve the design, specification, procurement, and installation of infrastructure improvements at the UAF TRTS. The improvements would include installation of wireless monitoring and remote/automated emergency stop systems, a modified frame trawl on an aluminum platform, a new outboard motor for the boat used to deploy the platform, and data collection instrumentation upgrades. The permits, authorizations, and hazard mitigations described above for Subtask 3.4 also apply to the field work involved in this subtask.

All proposed project work other than field work would be performed at existing, purpose-built facilities. No changes to the use, mission, or operation of these facilities, modifications, or ground disturbing activities would be required. No additional permits, licenses, or authorizations would be required.

Proposed activities would involve typical hazards associated with research facilities, including slips, trips, or falls and electric shock. All work would be completed under existing university laboratory and safety procedures. Protocols, training, and oversight are in place, including those for laboratory, chemical, occupational, and electrical safety. All proposed project activities would comply with federal, state, and local environmental regulations.

DOE has considered potential impacts on resources, including those of an ecological, historical, cultural, and socioeconomic nature. DOE does not anticipate adverse impacts on these resources.

**NEPA PROVISION**

DOE has made a conditional NEPA determination.

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

Tasks 1 and 2 (all Subtasks)
Subtasks 3.1.1, 3.2.1, 3.2.3, 3.3.1, 3.3.3, 3.4-3.8, and 3.9.1
Subtasks 4.1, 4.2, and 4.3
Tasks 5 and 6 (all Subtasks)

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

Subtask 3.1.2
Subtask 3.2.2
Subtask 3.3.2
Subtask 3.3.4
Subtask 3.9.2

Notes:

Water Power Technologies Office (WPTO)
NEPA review completed by Melissa Parker, 06/25/24

**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.

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: Andrew Montano Date: 6/26/2024

NEPA Compliance Officer

**FIELD OFFICE MANAGER DETERMINATION**

- [x] 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: _____ Date: _____

Field Office Manager