PMC-ND
(1.08.09.13)

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

RECIPIENT: Resolute Marine Energy, Inc. **STATE:** MA

PROJECT TITLE: Seawater Compatible Rotary Pump for Wave Energy Conversion

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0001663	DE-EE0008385	GFO-0008385-001	

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.)
B3.6 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 Resolute Marine Energy (RME) to design, develop, fabricate and test a low-speed, seawater-compatible rotary pump for use in a novel desalination system using wave energy conversion (WEC) technology. The project would also seek to demonstrate the feasibility of real-time control of flap load on its WEC prototype.

Project activities would include data analysis and computer modeling (e.g. use case analysis, failure modes and effects analysis, and development of real-time control scenarios), design work, product specifications development, fabrication of the scale-model pump, assembly of a hardware-in-the-loop test model (integrating the seawater pump), and viscous damping real-time control testing of the pump.

Design, modeling and analysis would be performed at RME's headquarters in Boston, MA and by the following project partners: University of Minnesota – Hydraulics Laboratory (Minneapolis, MN), Ricardo, Inc. (Detroit, MI), Re Vision Consulting LLC (Sacramento, CA), Austin Power Engineering (Wellesley, MA) and Charles River Hydraulics (Milford, MA).

All component testing would be performed at existing laboratory facilities operated by RME in Amesbury, MA. Equipment would be installed to assemble the hardware-in-the-loop test model, including the rotary pump, a motor, a flow rectifier, valves, hoses, and sensors configured to measure instantaneous torque variations. With the exception of the rotary pump, all components and equipment would be composed of off-the-shelf parts. The rotary pump would be manufactured by a qualified manufacturer to be selected at a future date. All equipment would be arranged in an indoor facility measuring 2,875 sq. ft.

The test model would be configured as a closed-loop system, utilizing approximately 100 gallons of seawater obtained from Newburyport, MA. During testing, water would be pumped by the motor-driven rotary pump at a controlled pressure and flow rate through a flow rectifier and then, through a series of check valves.

All facilities in which work would be conducted are pre-existing, purpose built facilities that have conducted work similar to that included as part of this award. No change in the use, mission, or operation of existing facilities would result from any of the proposed project activities.

The project would not involve the use or handling of hazardous materials. Any health and safety risks associated with the activities carried out under the tasks reviewed here, especially work involving assembly or fabrication, would be mitigated by adherence to relevant corporate health and safety policies and protocols. RME and its project partners would adhere to all local, state, and Federal health, safety and environmental standards and would obtain any permits necessary to conduct any of the work activities included as part of this project.

Based on the review of the proposal, DOE has determined the proposal fits 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. This proposal is categorically excluded from further NEPA review.

NEPA PROVISION

DOE has made a final NEPA determination for this award

Insert the following language in the award:

If the Recipient intends to make changes to the scope or objective of this project, the Recipient is required to contact the Project Officer, identified in Block 15 of the Assistance Agreement before proceeding. The Recipient must receive notification of approval from the DOE Contracting Officer prior to commencing with work beyond that currently approved. If the Recipient moves forward with activities that are not authorized for Federal funding by the DOE Contracting Officer in advance of a final NEPA decision, the Recipient is 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 Technologies Office
This NEPA determination does not require a tailored NEPA Provision.
NEPA review completed by Jonathan Hartman, 08/06/2018

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature: Electronically Signed By: Kristin Kerwin Date: 8/6/2018

NEPA Compliance Officer

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: _____ Date: _____

Field Office Manager