PMC-ND
(1.08.09.13)

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

RECIPIENT: Ocean Renewable Power Company **STATE:** ME

PROJECT TITLE: Design of High-Deflection Foils for MHK Applications

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
0001663	EE0008386	GFO-0008386-001	

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 Ocean Renewable Power Company (ORPC) to design, develop, and test hydrofoils with large deflections. The effects of the deflections on cross-flow turbine performance would be evaluated in order to inform design considerations for full-scale water turbines and other marine hydrokinetic devices.

Proposed project activities would include performance forecasting, fluidic and structural modelling, component design, fabrication of model turbines, and model-scale testing of turbine/foil designs in a wave tank. All laboratory work, including fabrication and testing, would be completed at the Jere A. Chase Ocean Engineering Laboratory (Durham, NH), which is owned and operated by ORPC's project partner, the University of New Hampshire (UNH). The model-scale turbine and hydrofoils would be designed and fabricated by ORPC. Four straight foil turbines and two helical turbines would be fabricated for testing. The turbine and hydrofoils would be fabricated from parts using approximately 50 kg of the following materials: carbon composites, steel, and aluminum.

Testing of the turbine and hydrofoils would be carried out in-lab in a tow and wave tank that is 12 ft. wide, 8 ft. deep, and 120 ft. long (3.67 m x 2.44 m x 36.6 m). Testing would not be water consumptive, as the tank is kept full of water and would only need to be filled to offset evaporation. During testing, ORPC's project partner, Sandia National Laboratories (Sandia), would supply ORPC with optical fiber slip rings to be used for data collection. Sandia would also consult on data collection/analysis.

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. Neither ORPC nor any of its project partners would need to obtain any additional permits in order to realize the work activities proposed as part of this award.

Appropriate health and safety precautions would be taken during fabrication and testing. Any potential health, safety or environmental hazards would be mitigated through adherence to standardized corporate health and safety policies and procedures, including employee training, proper protective equipment, monitoring and internal assessments.

Any work proposed to be conducted at a DOE laboratory may be subject to additional NEPA review by the cognizant DOE NEPA Compliance Officer for the specific DOE laboratory prior to initiating such work. Further, any work

conducted at a DOE laboratory must meet the laboratory's health and safety requirements.

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.

Insert the following language in the award:

You are required to:
Any work proposed to be conducted at a DOE laboratory may be subject to additional NEPA review by the cognizant DOE NEPA Compliance Officer for the specific DOE laboratory prior to initiating such work. Further, any work conducted at a DOE laboratory must meet the laboratory's health and safety requirements.

Note to Specialist :

Water Power Technologies Office
This NEPA determination requires a tailored NEPA Provision.
NEPA review completed by Jonathan Hartman, 07/19/2018

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature: Electronically Signed By: Kristin Kerwin Date: 7/19/2018

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