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(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 :** Advanced Energy Harvesting Control Schemes for Marine Renewable Energy Devices

<b>Funding Opportunity Announcement Number</b>	<b>Procurement Instrument Number</b>	<b>NEPA Control Number</b>	<b>CID Number</b>
DE-FOA-0000848	DE-EE0006397	GFO-0006397-003	GO6397

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:

**B5.25 Small-scale renewable energy research and development and pilot projects in aquatic environments** Small-scale renewable energy research and development projects and small-scale pilot projects located in aquatic environments. Activities would be in accordance with, where applicable, an approved spill prevention, control, and response plan, and would incorporate appropriate control technologies and best management practices. Covered actions would not occur (1) within areas of hazardous natural bottom conditions or (2) 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, use of large-scale vibratory coring techniques, or seismic activities other than passive techniques.

## Rationale for determination:

The U.S. Department of Energy (DOE) is proposing to provide federal funding to Ocean Renewable Power Company (ORPC) to investigate, analyze, and model advanced turbine control schemes with the objective of increasing the energy produced by hydrokinetic turbines.

DOE completed two previous NEPA determinations for this project. An initial determination allowed Tasks 1.0-3.1, 5.0 and 6.0 (GFO-00006397-001, CX A9 12/17/2013). A second determination allowed Tasks 3.2 and 3.3 (GFO-00006397-002, CX B5.25 7/17/2014).

This NEPA review is being conducted for Task 4 (Control System Implementation and Verification), which involves testing and deployment of the RivGen turbine in the Kvichak River near Igiugig, Alaska.

In Task 4 ORPC would deploy and operate the RivGen turbine in the Kvichak River. The site of deployment in the Kvichak River would be near the community of Igiugig, Alaska, located near the outlet of Iliamna Lake. The RivGen was deployed in approximately the same location for testing during the same time period in 2014. That deployment and testing was funded under an Alaskan Energy Authority grant. DOE was not involved in funding that deployment.

The RivGen turbine is a hydrokinetic horizontal access turbine approximately 43 feet long by 42 feet wide by 11 feet high. The device contains a vertical fairing over the generator, mounted in the center of the device. It also contains a horizontal fairing located below the turbines. The device would be anchored 7 feet below mean lower low water (MLLW), held in place by weight and the addition of two drag embedded anchors attached to the opposite sides of the device. Two 32 foot aluminum fishing boats, an 18 foot aluminum fishing boat, and a flexifloat barge may be used within the project area for deployment, data gathering, and removal of the system.

During deployment, from July through September 2015, ORPC would be testing the device under a variety of operating conditions to evaluate control strategies and grid integration. This would include implementation and testing

of the feed forward control scheme on the RivGen. This testing would include the use of two Nortek Acoustic Waves and Currents (AWAC) 2D current profilers which would be mounted on the RivGen chassis. The units, which are small in size, would be mounted on the RivGen prior to submergence and removed subsequent to retrieval. The AWAC devices have an operating frequency of 1 MHz. This operating frequency is several orders of magnitude higher than the auditory ranges of fish on the Kvichak River. Information from the units would be transmitted to shore through an Ethernet cable which would run alongside the power transmission cable.

A Biological Evaluation (BE) for the project was completed by ORPC and submitted to DOE on January 28, 2015. The BE determined that the project is possibly within the range of the migration route of the Steller's eider, which was listed as threatened in 1997. During informal consultation with the U.S. Fish and Wildlife Service (USFWS) it was determined that the project would not impact the Stellar eider as the project would be on or under the river and the eider, if migrating through the area, would fly over and not land on or near the vicinity of the river. The USFWS determined that additional consultation with DOE regarding the project was not necessary. The Igiugig Village Council (IVC) has also consulted with the FWS under section 7 of the Endangered Species Act, through which it was determined that no threatened or endangered species commonly occur in the vicinity of the project. An Essential Fish Habitat Assessment was also completed and has been submitted to the National Marine Fisheries Service for consultation under the Magnuson-Stevens Act.

ORPC has entered into a Memorandum of Understanding with the Igiugig Village Council to act on IVC's behalf in respect to permitting. The Federal Energy Regulatory Commission (FERC) has issued a preliminary permit (P-13511) for the project site. The U.S. Army Corps has also issued Permit #52 (POA-2012-287, valid through March 18, 2017) authorizing use of the Kvichak River for the project. The U.S. Army Corps also contacted USFWS as part of the Army Corps permitting process, per the requirements of Section 107 of the Endangered Species Act. In that consultation, the USFWS again determined that no threatened or endangered species commonly occur in the vicinity of the project. The Army Corps permit is also in compliance with the U.S. Coast Guard regulations for activities within navigational waterways. Additional permits include an Alaska Department of Natural Resources Land Use Permit, and an Alaska Department of Natural Resources Temporary Water Use Permit.

A Fish and Wildlife Monitoring Plan was developed for the 2014 deployment. During that deployment no negative effects to fish or wildlife were observed. A Fish and Wildlife Monitoring and Fish Habitat Plan for the 2015 deployment has been submitted to Alaska Department of Fish and Game.

ORPC and the Igiugig Village Council have partnered on the RivGen project, and entered into an MOU. As the tribal council is a project proponent no further consultations with the tribe are necessary.

Based on review of the project information and the above analysis, existing permit requirements, and completion of consultations with other federal agencies, DOE has determined that Task 4 would not have a significant individual or cumulative impact to human health and/or environment. DOE has determined the proposed project is consistent with actions contained in DOE categorical exclusion B5.25 (small scale renewable energy research in aquatic environments) and 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 you intend to make changes to the scope or objective of your project you are required to contact the Project Officer identified in Block 11 of the Notice of Financial Assistance Award before proceeding. You must receive notification of approval from the DOE Contracting Officer prior to commencing with work beyond that currently approved.

Insert the following language in the award:

You are required to:

The Essential Fish Habitat consultation with the National Marine Fisheries Service must be completed prior to DOE authorizing funds for the 30-day control test activities under subtask 4.3. The recipient is restricted from initiating field test activities under subtask 4.3 until this consultation is completed and notification has been received from DOE. The DOE Contracting Officer will notify the recipient, in writing, when the consultation has been completed and of any conservation or mitigation measures that must be implemented for field test activities under subtask 4.3.

Note to Specialist :

Water Program

This NEPA determination requires a tailored NEPA provision.

NEPA review completed by Roak Parker and Lori Gray 4/29/2015

**SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.**

NEPA Compliance Officer Signature: Electronically Signed By: Lori Gray / Lori Gray Date: 4/29/2015  
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