

PMC-ND

(1.08.09.13)

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



RECIPIENT:Portland State University

STATE: OR

PROJECT TITLE : A Hermetically Sealed Magnetically Geared Marine Hydrokinetic Generator

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0001663	DE-EE0008100	GFO-0008100-001	

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 Portland State University (PSU) to design, fabricate, and conduct laboratory testing on a magnetic gearbox and magnetically geared generators.

The proposed project is divided into 6 Tasks.

In Task 1, PSU would design, fabricate, and test a magnetic gearbox. In Tasks 2-4, PSU would design, fabricate, and test 3 magnetic geared generators (MGGs) (a subscale generator, a 5kW generator, and a 50 kW generator).

Parts used to fabricate the devices in Tasks 1-4 would be purchased by PSU from a reputable machine shop that produces such parts in their ordinary course of business. Assembly of the parts to fabricate the magnetic gearbox and all MGGs would occur at PSU in a laboratory designed for this type of work. Materials used in the devices would include steel, aluminum, copper wire, and magnets. The largest device, the 50 kW MGG, would be approximately 24 inches in diameter and 8 inches in length. All other devices would be considerably smaller. Laboratory testing of the devices would be conducted on PSU's existing dynamometer test stand. Analysis of results would be conducted at PSU, the University of North Carolina, and at the National Renewable Energy Lab, in Golden Colorado, at existing office facilities. Results of the analysis of testing on the smaller scale devices would be utilized in redesigning and constructing the larger scale devices.

In Task 5, PSU would fabricate a water tank that could be incorporated with the PSU dynamometer, and then test the 5kW MGG in the tank. The tank would be approximately 3 feet by 2 feet by 2 feet in size. It would either be a repurposed fish tank, or a built tank made from Plexiglas type material and epoxy. The tank would have a hole in the side which would allow insertion of a shaft into the tank that could be connected to the 5kW device and the dynamometer. The tank would be set upon a test bed in the existing PSU laboratory. The tank would be filled with ordinary tap water for testing.

Task 6 would be limited to production of a final written report.

No modifications to existing facilities or new permits would be required.

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.

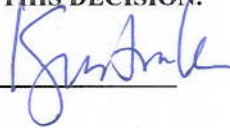
Note to Specialist :

Water Power Program
This NEPA determination requires a tailored NEPA provision.
Review completed by Roak Parker 8/10/17

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature:

 Electronically Signed By: Kristin Kerwin
NEPA Compliance Officer



Date: 8/10/2017

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: