

PMC-EF2a

(20102)

**U.S. DEPARTMENT OF ENERGY**  
**EERE PROJECT MANAGEMENT CENTER**  
**NEPA DETERMINATION**



RECIPIENT: University of Hawaii

STATE: HI

**PROJECT TITLE :** Hawaii National Marine Renewable Energy Center

<b>Funding Opportunity Announcement Number</b>	<b>Procurement Instrument Number</b>	<b>NEPA Control Number</b>	<b>CID Number</b>
	DE-FG36-08GO18180	GFO-09-013-005	GO18180

**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:

<b>A9 Information gathering, analysis, and dissemination</b>	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.)
<b>A11 Technical advice and assistance to organizations</b>	Technical advice and planning assistance to international, national, state, and local organizations.
<b>B3.6 Small-scale research and development, laboratory operations, and pilot projects</b>	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.

**Rational for determination:**

The U.S. Department of Energy (DOE) is proposing to provide federal funding to the University of Hawaii (UH) to further facilitate the development and implementation of commercial wave energy systems via the Hawaii National Marine Renewable Energy Center (HINMREC) housed at the University's Hawaii Natural Energy Institute (HNEI). The primary objective of the proposed project is to support development and commercialization of marine and hydrokinetic (MHK) technology by providing a testing infrastructure that allows developers to prove their devices and generate the necessary data to advance their designs toward commercial readiness.

The proposed scope expansion and associated activities would allow HINMREC to expand data collection and analysis capabilities to compliment and accelerate the build-out of the U.S. Navy's Wave Energy Test Site (WETS) grid-connected open water wave energy conversion (WEC) test facility at Marine Corps Base Hawaii (MCBH) at Kaneohe Bay, Hawaii. The MCBH facility currently has one established WETS in-water 30 meter deep site and is proposing to add two more WETS at 50 and 70 meters. The design of the expanded WETS is the responsibility of Naval Facilities Engineering Command – Engineering Service Center (NAVFAC-ESC) and its subcontractors. The final design is currently scheduled for completion by early 2013. HINMREC is providing continued technical advice to Naval Facilities Engineering Command (NAVFAC) and its subcontractor in all aspects of the design including the ongoing Navy Environmental Assessment (EA) and related field surveys.

Prior DOE NEPA determinations, GFO-09-013 (CX A9 and B3.6; 2/26/2009); GFO-09-013-001 (CX A9 and B3.6; 2/24/2011); GFO-09-013-002 (CX A9 and B3.1; 2/24/2011); GFO-09-013-003 (CX A9; 9/29/2010); GFO-09-013-004 (CX A.9 and A11; 11/24/2010), were made for Tasks 1.0, 2.0 and Subtasks 3.1, 3.2.1. The revised Statement of Project Objectives includes activities such as data collection, analysis, dissemination, laboratory work and technical advice. It also includes deployment activities involving the installation of new in-water equipment, maintenance and testing of in-water equipment and/or in-water data collection and sampling. Due to the potential impacts to aquatic environments, further NEPA review is required for the proposed installation of new in-water equipment, maintenance of in-water equipment and/or in-water data collection and sampling. This NEPA review covers information gathering, analysis, laboratory work, computer modeling and technical advice activities only.

The following tasks (as summarized below) involve methodology development, computer modeling, and analysis of

data collected via existing or proposed equipment, laboratory work and technical advice.

- Subtask 3.2.2 - Wave Data Analysis and Forecasting

Desktop information gathering and data analysis of existing wave data from the WETS location to calibrate an online wave forecasting service managed by HINMREC to support the current WETS activities and the future planning, deployment, and operation of wave energy devices to be installed at WETS.

- Subtask 4.1.1 - Testing Standardization for Passive Acoustic Measurement

Methodologies would be developed to standardize acoustic emission testing of marine renewable energy devices.

- Subtask 4.2.1 - Testing Standardization for Passive EMF Measurement

Methodologies would be developed to standardize anthropogenic electromagnetic fields (EMF) emission measurements of submarine power cables and marine renewable energy devices at the WETS location.

- Subtask 5.1 - WETS Test Protocols and Data Acquisition System

The proposed design and procurement of a data acquisition system able to estimate device performance through the collection of sea surface elevations and power output from WEC devices. This task would develop test protocols to be used to standardize the field performance evaluation of wave energy conversion devices to be field tested at WETS. This subtask is associated with the deployment/installation of an Acoustic Doppler Current Profiler (ADCP) in Subtask 4.3, therefore only design, procurement and test protocol development activities are allowed under this determination until additional information on Subtask 4.3 is provided to DOE.

- Subtask 5.2.1 - WEC Performance Model

Computer modeling activities would be performed to allow virtual testing and simulation of proposed WEC devices.

- Subtask 5.2.2 - WEC Testing Phase Data Analysis

Desktop data acquisition and computer analysis of field data collected during the testing of WEC devices that would be installed at the proposed WETS expansion. This would not involve the installation or deployment of in-water devices.

- Subtask 6.1 - Operational Models for WEC Arrays

Computer modeling and analysis activities to evaluate wave energy device spacing and optimized ocean area requirements for the future commercial arrays as well as for the regulatory permitting process associated with the Navy EA for the proposed expansion to the WETS location.

- Subtask 6.2 - Alternate Mooring Designs

Evaluation of the performance of the mooring systems designed for the proposed expansion to the WETS location.

- Subtask 6.3 - Conduct AI Corrosion and Biocorrosion Studies

To help identify aluminum alloys for WEC devices operating in corrosive marine environments, this activity would involve aluminum corrosion and biocorrosion testing with aluminum exposed to flowing sea water from different depths available at the land-based Ocean Thermal Energy Conversion (OTEC) facility maintained and operated by Makai Ocean Engineering (MOE) which is within the Natural Energy Laboratory of Hawaii Authority (NELHA). HINMREC completed an R&D Laboratory questionnaire addressing the protocols for laboratory safety, risk management and waste disposal. The laboratory complies with standard safety procedures and all processes and procedures are monitored by NELHA, MOE and by internal and external audits through the ISO 9001 certification process. NEHLA pipes sea water from the ocean for a variety of tests; after materials are tested in the sea water within the facility, it is discharged into an engineered disposal trench which is permitted and supervised by the Hawaii Department of Health. All pertinent permits are in place for the facility to perform this type of work and no new permits would be required. The facility is located at 73-4460 Queen Kaahumanu Hwy. #101, Kailua-Kona, Hawaii, 96740.

This DOE NEPA Determination does not apply to Subtasks 4.1.2, 4.2.2, 4.3, 4.4, 4.5 and 5.2.3, which are associated with the proposed installation of new in-water equipment, maintenance and testing of in-water equipment and/or in-water data collection and sampling as potential impacts to aquatic environments and species related to these tasks have not been evaluated. These subtasks are subject to further NEPA review prior to the authorization of federal funds.

Based on the review of the project information and the above analysis, DOE has determined the research and development activities in Subtasks 3.2.2, 4.1.1, 4.2.1, 5.1, 5.2.1, 5.2.2, 6.1, 6.2 and 6.3 would not have a significant individual or cumulative impact to human health and/or environment. These activities are consistent with actions defined in DOE categorical exclusions A9 "information gathering, analysis, and dissemination", A11 "technical advice" and B3.6 "small-scale research and development, laboratory operations and pilot projects" and are categorically excluded from further NEPA review.

## NEPA PROVISION

DOE has made a conditional NEPA determination for this award, and funding for certain tasks under this award is contingent upon

the final NEPA determination.

Insert the following language in the award:

You are restricted from taking any action using federal funds, which would have an adverse affect on the environment or limit the choice of reasonable alternatives prior to DOE/NNSA providing either a NEPA clearance or a final NEPA decision regarding the project.

Prohibited actions include:

- Subtask 4.1.2
- Subtask 4.2.2
- Subtask 4.3
- Subtask 4.4
- Subtask 4.5
- Subtask 5.2.3

This restriction does not preclude you from:

- Subtask 3.2.2
- Subtask 4.1.1
- Subtask 4.2.1
- Subtask 5.1
- Subtask 5.2.1
- Subtask 5.2.2
- Subtask 6.1
- Subtask 6.2
- Subtask 6.3

If you move forward with activities that are not authorized for federal funding by the DOE Contracting Officer in advance of the final NEPA decision, you are doing so at risk of not receiving federal funding and such costs may not be recognized as allowable cost share.

Note to Specialist :

This project has a NEPA hold on Subtasks 4.1.2, 4.2.2, 4.3, 4.4, 4.5 and 5.2.3 and will require an additional NEPA review and approval prior to expenditure of funds for these activities.

Obadiah Broughton 11/15/2012

Total Funding: \$4,202,858 (DOE Funding: \$2,098,907; Cost Share: \$2,103,951)

Funds released under this determination: \$2,193,807

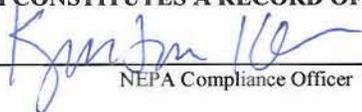
- Subtask 3.2.2 \$90,000
- Subtask 4.1.1 \$514,375
- Subtask 4.2.1 \$332,197
- Subtask 5.1 \$251,338
- Subtask 5.2.1 \$192,693
- Subtask 5.2.2 \$269,588
- Subtask 6.1 \$142,935
- Subtask 6.2 \$40,000
- Subtask 6.3 \$360,681

Conditioned funds on hold: \$2,009,051

- Subtask 4.1.2 \$305,415
- Subtask 4.2.2 \$285,339
- Subtask 4.3 \$173,705
- Subtask 4.4 \$475,164
- Subtask 4.5 \$180,900
- Subtask 5.2.3 \$588,528

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

NEPA Compliance Officer Signature: \_\_\_\_\_

  
NEPA Compliance Officer

Date: \_\_\_\_\_

12/6/2012

**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: \_\_\_\_\_

5/10/12

*[Handwritten Signature]*