

PMC-ND

(1.08.09.13)

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

**RECIPIENT:** Northwest Energy Innovations**STATE:** OR

PROJECT TITLE : Wave Energy Technology-New Zealand Multi-Mode Technology Demonstration at the US Navy's Wave Energy Test Site

Funding Opportunity Announcement Number DE-FOA-0000705 **Procurement Instrument Number** DE-EE0006056 **NEPA Control Number** **CID Number**

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 Northwest Energy Innovations (NWEI) to redeploy their wave energy conversion (WEC) device (formally known as the WET-NZ) at the U.S. Navy's wave energy test site at the Marine Corp Base Hawaii (MCBH) in Kaneohe, Hawaii. This site is known as the 30-meter Wave Energy Test site (WET). NWEI is proposing to conduct open-ocean, grid connected testing where DOE funding would be used for mooring system design, grid interconnection design, deployment of the WEC device and 12 months of testing, evaluation and dissemination of information.

A previous NEPA review was conducted on activities proposed under this project in April 2013 (GFO-0006056-001). Preliminary planning, designs, component modification, and permitting activities were categorically excluded from further NEPA review. Tasks 4.3 and 5.0 were conditioned pending additional information. This review is being prepared to analyze impacts related to those tasks, which will complete the NEPA reviews necessary for this project.

This NEPA determination applies to tasks 4.3 and 5.0:

- 4.3: Deployment
- 5.0: Testing, Evaluation and Dissemination

Background Information:

In April 2003, the U.S. Navy completed an Environmental Assessment (Navy EA) and a Finding of No Significant Impact was signed for the Wave Energy Test site. The Navy EA analyzed the impacts of phased installation and operational testing of up to six WEC devices over a five year period.

The WET site is designed to accommodate surface floating WEC devices and includes an existing mooring and anchoring system in the ocean to secure the devices and power/communication cables that connect them onshore to existing power conversion and distribution equipment located at Battery French. In September of 2003, the anchoring system and subsea cable were installed. In May of 2004, the first WEC device was installed, tested, and removed. In

June of 2007, a second WEC device was installed and removed. In December of 2009, a third WEC device was installed, and removed in January 2012.

The proposed deployment is a collaboration between NWEI, DOE, Naval Facilities Engineering Command Engineering and Expeditionary Warfare Center, the University of Hawaii's HINMREC, and the National Renewable Energy Laboratory (NREL). This device would be the fourth in a series of WEC devices tested at the WET site. It is comparable in size and weight to the most recently deployed WEC device tested at the site.

Project Description:

NWEI is planning to deploy their 1:2 scale WEC device at the Navy's 30-meter WET site in the first half of 2014 for a period of up to 12 months.

The NWEI device is a multi-mode point absorber, extracting energy from both the heave and surge components of a wave, thereby producing power as a result of the relative motion between the device's hull and float. Like those previously tested at the WET site, it would also be free floating and moored with a three-point anchoring system. It is approximately 12 ft. in diameter and weighs approximately 65,000 pounds out of water. Its overall length/draft of the entire apparatus is approximately 47 ft., with a height above water of about 14 ft. The device would utilize the site's existing anchors which are already affixed to the sea floor with rock bolts.

The NWEI device is configured so that the electronics, hydraulic power conversion system and generator are enclosed within the sealed, water-tight Power Pod, which eliminates the exposure of the majority of the wires, hydraulic lines, and hydraulic equipment from seawater. The only hydraulic components exposed to seawater are the hydraulic cylinders that are attached to the crankshaft. However, these are enclosed in the steel structure and protected from the impact of a vessel or floating debris. The interior of the structure and opening at the bottom of the buoy is free of obstructions, sharp edges, or corners.

Only one power/fiber optic cable would exit the device and would carry the power generated and communication information to an existing subsea transformer pod used to connect previous buoys. As the cable is relatively stiff, entanglement, which may otherwise present a risk, impacts to marine species would be of less concern than readily bendable cables. The undersea transmission cable comes ashore at an existing concrete utility vault which serves as a junction box between the undersea cable and the land transmission cable. The cables are bolted to the utility vault at the entrance and exit points to prevent movement or tampering.

The NWEI device's lighting and navigational aids are similar to those on the previous buoys and would be moored such that all anchors and mooring lines would all be within the existing WETS test area.

The NWEI device would be delivered to Sea Engineering's (SEI) Pier 26 work yard in Honolulu, Hawaii for final fitting and shore side testing. Once final assembly and testing is complete, the device would be transferred to Keehi Marine Center for deployment into the Keehi Small Boat Harbor. NWEI device recovery is scheduled to occur on the day following the completion of the 12 month testing period. A 74' landing craft would act as the main support vessel during recovery operations. Two additional vessels would be utilized as support during the recovery process, including a 24' RHIB and 27' commercial Boston whaler vessel. The recovery and removal process is expected to take two days.

Potential Impacts of the Proposed Action:

Visual Effects:

The visual resource analysis in the Navy EA determined that any potential impact on scenic views would be minimal and temporary due to impermanent nature. The NWEI Device is also smaller in size and in the amount that is visually exposed above the water compared to the other WEC devices analyzed in the Navy EA, which would further reduce impacts to visual resources.

The top of the NWEI Device would float approximately 14 ft. above water, with approximately 47 ft. submerged (though the buoy will fluctuate from this during wave action). The device's lighting and navigational aids, which may be visible at night, are similar to those on the previous buoys and other marine vessels in the area. These will be in compliance with U.S. Coast Guard regulations. The impact on scenic views and the public would continue to be minimal due to the distance from the shore (approximately 3,900 ft.), location (off the end of a runway on a military installation), and the temporary nature of the deployment.

Cultural Resources:

Although there are historic properties present, specifically Battery French and the Mōkapu Burial Area, the undertaking will not alter the characteristics making these properties eligible for inclusion in the National Register of Historic Places (NRHP) or as a National Historic Landmark (NHL). The State Historic Preservation Office concurred with the Navy's previous determination of "no historic properties affected" for the 2003 Navy EA. The Proposed Action will utilize the existing WET site infrastructure, which is situated within both sites; however there would be no changes

to the equipment that would result in any disturbance.

Applicant Committed Mitigation Measures:

In order to further minimize potential impacts, NWEI agrees to comply with the following:

- * Follow the National Marine Fisheries Service's "Best Management Practices (BMPs) for General In- and Near-Water Work Including Boat and Diver Operations".
- * Follow the Navy's established Best Management Practices, General and Special Conditions for testing at the WET site.
- * NWEI will adhere to all health safety and environmental measures set forth in the U.S. Army Corps permit and NWEI's agreement with the Navy.
- * Prior to operations, notification to MCBH Water Front Ops, Honolulu Harbor authorities and the U.S. Coast Guard shall be made as required.
- * The NWEI Device, mooring lines, umbilical cable, and T-Pod will be removed at the end of the testing period.
- * Secure the NWEI Device in such a manner that there is minimal risk of these breaking free during high winds and swells.
- * Employ BMPs to avoid discharge of pollutants such as iron and petroleum products from the structures, NWEI Device and vessels.
- * Implement the following plans:
Deployment Plan
Retrieval Plan
Emergency Response and Safety Plan
Dive and Marine Ops Safety Plan
- * To the extent practical, the installation vessel mooring lines and anchor chains for the four mooring clumps would be pulled taut during installation.
- * Anchor vessels/barges used during construction and during ongoing inspection and operations only in sandy substrate or limestone devoid of corals.
- * Sites for anchoring and installation of structures on bottom should be selected to avoid injury/damage to live coral in the project area. The anchors, the cable, the crate and the grate should not be placed on top of, nor where possible immediately adjacent to, coral colonies of any species.
- * HINMREC will ensure that all contractors involved in the deployment activities, be familiar with and ensure that each of the BMPs as proposed are successfully implemented, and monitored for effectiveness throughout the duration of the project.

Consultations:

DOE initiated consultation with the National Marine Fisheries Service (NMFS) in compliance with Section 7(c) of the Endangered Species Act (ESA) of 1973, as amended; and in compliance with the Marine Mammal Protection Act (MMPA), as amended in 2007. The consultation also incorporated an evaluation of the potential effects of the proposed project activities on Essential Fish Habitat (EFH), in compliance with the Magnuson-Stevens Act (MSA), as amended in 2007.

There are no known threatened or endangered plants and terrestrial fauna within the Project area. The Western Pacific Regional Fishery Management Council has designated all the ocean waters surrounding Oahu, from the shore to depths of over 100 ft. as an Essential Fish Habitat for one or more regulated species. However, there are no areas within the proposed Project area that have been designated as Habitat Areas of Particular Concern under the EFH regulations. In addition, the qualitative and quantitative data gathered by the Navy between 2003 and 2011 at the existing WET site have shown no detectable adverse impacts to any marine natural resources, including any threatened or endangered species, EFH or any fishery target species.

Based on analysis of the proposed activities and the resources present in the project area, DOE concluded that the proposed activities would not likely have an adverse effect to ESA-listed or eligible species or their designated critical habitat. The consultation also assessed impacts to marine mammals and essential fish habitat. DOE has determined an Incidental Harassment Authorization is not required under the MMPA; and has determined there would not be an

adverse impact to EFH.

In a letter dated November 22, 2013, the NMFS concurred with DOE's findings as presented in the consultation letter and biological analysis. They concurred that the activities being proposed "may affect, but would not likely adversely affect" ESA-listed species. Separately, NMFS determined that adverse effect to EFH including coral reef resources from the proposed action would likely be none to minimal.

Required Permits:

- * US Coast Guard Private Aids to Navigation Permit – The Navy will acquire this permit as part of their regulatory process.
- * US Army Corps Section 10 permit – the Navy has acquired this permit as authorized by Nationwide Permit (NWP) No. 5, Scientific Measurement Devices on October 8, 2013
- * Coastal Zone Management Act - The Hawaii Department of Business, Economic Development & Tourism's Coastal Management Program concurred that the 'Navy/Marine Corps De Minimis Activities Under CZMA' are consistent Hawaii Coastal Zone Management Program on July 9, 2009.

Determination:

Based on the above environmental analysis and information, DOE has determined that Tasks 4.3 and 5.0 would not significantly impact the quality of the human or natural environment, individually or cumulatively, and are consistent with actions covered under DOE CX B5.25 (Small-scale renewable energy research and development and pilot projects in aquatic environments); and therefore 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:

Comply with the following U.S. Navy conditions as required by their NEPA determination and issuance of their categorical exclusion [5.f (13) and 5.f (3)]:

U.S. Navy Pac-SLOPES Activity Specific BMPs
U.S. Navy Pac-SLOPES General Conditions
U.S. Navy Pac-SLOPES Special Conditions

Comply with the general and special conditions as outlined in the U.S. Army Corps Section 10 permit.

Comply with the National Marine Fisheries Service's "Best Management Practices (BMPs) for General In- and Near-Water Work Including Boat and Diver Operations".

Comply with the Applicant Committed Measures described in this DOE NEPA Determination.

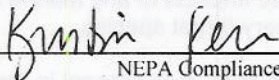
Note to Specialist :

NEPA review completed by Laura Margason on November 14, 2013.

This determination will require a tailored provision.

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature:



NEPA Compliance Officer

Date:

11/26/2013

FIELD OFFICE MANAGER DETERMINATION