

PMC-ND

(1.08.09.13)

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



RECIPIENT: University of Hawaii

STATE: HI

PROJECT
TITLE : HI NMREC WETS Environmental Testing at 30-meter Site

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-PS36-08GO98030	DE-FG36-08GO18180	GFO-GO18180-006	

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:

DOE is proposing to provide funding to the University of Hawaii (HINMREC) to conduct environmental monitoring for two to three months before and after the testing period of the Northwest Energy Innovations wave energy conversion (NWEI WEC) device at the Wave Energy Test site owned by the U.S. Navy (Marine Corps) on the island of Oahu, Hawaii.

HINMREC scientific monitoring devices would be placed in marine waters at the Wave Energy Test (WET) site located in Kaneohe bay adjacent to the Marine Corps Base Hawaii (MCBH). The devices would be deployed in 30 meter water depths approximately 3/4 of a mile offshore and would remain on site over an approximate two-year period.

DOE is also proposing to provide funding to HINMREC to conduct environmental monitoring activities at the MCBH's proposed 50- and 70- meter deep water test site. Activities at the deep water site are currently going through a separate Endangered Species Act (ESA) Section 7 consultation, as initiated by the U.S. Navy and the U.S. Army Corps (PIRO consultation #I-PI-12-1006-LVA and NWP #3, POH-2011-00308, PIRO consultation # I-PI-12-1006-LVA respectively). DOE, the Navy, and the National Marine Fisheries Service have determined that these activities have independent utility from the proposed monitoring at the existing shallow test site and will be analyzed in a separate NEPA review.

This NEPA determination only applies to activities taking place at the 30-meter WET site. Any and all activities proposed to be completed at the 50- and 70 meter site are subject to further NEPA review.

For the 30-meter test site, HINMREC would deploy:

- (1) one Acoustic-Doppler-Current-Profiler (ADCP);
- (2) one set of electromagnetic field (EMF) sensors (one electric and one magnetic); and,
- (3) one hydrophone unit to collect environmental data of the surrounding area and of the NWEI Device while it is being tested. Data would be analyzed to first determine the natural acoustic signature of the site and subsequently the signature of the device under different sea states, ocean conditions and operational loads.

Wave and Current Profiler (ADCP) -

An ADCP would be used to gather ocean currents and waves data. The profiler would be placed in the vicinity of the 30-meter WET site. The project would utilize a Teledyne ADCP with operating at frequencies at 600 kHz or 195-196 dB. The profiler would be bolted to a fiber glass grate base approximately 2 ft x 2 ft in size. Four 22 lb anchor weights would be lowered to the seafloor from the deployment vessel. The four weights are zip tied and lashed to the corners of the grate base. All crates used would include a small surface marker buoy for retrieval.

EMF Recorders -

HINMREC proposes to use marine EMF probe technology to conduct period sampling in-and around the Navy's 30-meter WET site. Testing would include data acquisition of time-series magnetic (B-field) and electric (E-field) measurements with equipment and cables both energized and de-energized. The EMF monitoring recorders would be tied onto a platform that would be placed on the ocean bottom that would have a surface marker buoy attached for retrieval. The combined unit weighs approximately 300 lbs and 4 ft x 5 ft in size.

Hydrophones -

HINMREC would deploy one moored hydrophone that would be attached to a platform approximately 6 ft x and 0.5 ft in diameter. In addition, HINMREC would deploy a free drifting buoy with a hydrophone attached one-meter below the surface at the WET site to conduct periodic autonomous measurements.

Both would be omni-directional and only listen to and passively receive sounds. They would be encased (including all electronics and sensors) in a watertight and pressure resistant housing. No chemicals, liquids, or gases are present in the housing containers. The moored hydrophones would be deployed and retrieved from the water either by divers, a small crane, or A-frame immediately after testing schedule is completed.

The primary work vessel used to deploy, monitor and retrieve all equipment would be a 25-foot modified Boston Whaler with twin 115 hp engines. The vessel would transit from Heia Harbor (30 minutes from WETS) with the following frequency:

- 1) ADCP: 2 hrs/day at WETS every six months.
- 2) EMF Probes: 6 hours /day for four weeks every year
- 3) Hydrophones: 4 hrs/day at WETS once every three months

All equipment would be completely removed at the end of the NWEI project testing period and each subsequent WEC testing scenario.

Applicant Committed Measures:

HINMREC shall to comply with the following measures in order to minimize potential impacts to marine resources:

- * HINMREC will follow the National Marine Fisheries Service's 2013 "Best Management Practices (BMPs) for General In- and Near-Water Work Including Boat and Diver Operations".
- * HINMREC will ensure that vessel operators comply with the National Marine Fisheries Service's current recommended BMPs that include measures intended to prevent the introduction of wastes and toxicants into the marine environment.
- * HINMREC will ensure that all equipment and mounting hardware is removed at the 30-meter site upon completion of the project.
- * HINMREC and/or their subcontractors would adhere to the "Diving Safety Manual University of Hawai'i System," dated August 2008, that includes revisions and improvements embodied in the current AAUS Guidelines for Conduct of Scientific Diving Programs and Certification of Scientific Divers.
- * 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.
- * HINMREC will acquire a US Coast Guard Private Aids to Navigation Permit, as necessary for deployed instrumentation affecting navigable waters.

The above mitigation measures would be integral elements of into both proposed projects (NWEI and University of

Hawaii) being completed at the MCBH WET site.

Impact Analysis:

Based on the planned installation, operation, and removal of the monitoring instruments, the potential impacts to marine resources would be:

Species collision with project-related vessels:

Project activities include the operation of vessels. Sea turtles and marine mammals must surface to breathe, and they are known to rest or bask at the surface. Therefore, when at or near the surface, these animals are at risk of being struck by vessels or their propellers as the vessels transit to and from, as well as maneuvering in and around the WEC mooring site.

Based on the relatively low number of vessel trips expected to be conducted as part of the project, and on the expectation that vessel operators would carefully watch for and avoid protected marine species, and alter course and speed according to the NMFS recommended BMPs, the risk of collisions between project-related vessels and protected species would be considered discountable.

Direct impact to marine species by project related equipment and materials:

The proposed project involves the placement of project materials on the seafloor. These activities have the potential to directly strike marine animals (and corals) should those animals be present when the equipment or project materials are placed on the bottom.

The NMFS recommended BMPs require that work be postponed or halted when protected species are within 50 yards, that the area where materials would be deployed be specifically cleared, and that materials be lowered in a controlled manner. Given that marine animals would likely avoid project areas on their own due to on-going activities, that the BMPs would be followed and require that the project manager ensure the area is free of ESA-listed marine animals, and that all materials and equipment would be lowered in a controlled manner, the risk of a marine animal being impacted by project related equipment and materials is considered discountable.

Marine mammal entanglement:

The proposed project includes the deployment of three marker buoys for the monitoring systems; one each for the two electromagnetic field recorders, and one for the wave and current profiler. They would be completely removed from the water at the end of the monitoring project. The length of the lines would be kept to the minimum required to allow the buoy to ride at the surface over the range of tidal movement and wave heights expected in the area. As such, the moorings are expected to be streamlined and held relatively taut such that loops would not form in the lines. In the unlikely event that an ESA-listed marine species came into contact with one of these marker lines, it is most likely that the line would pass harmlessly along that animal. Based on the best information available, as described above, the risk of marine species becoming entangled in project-related lines would be discountable.

Marine Species exposure to sound:

The most high-frequency sensitive marine mammals hear up to about 180 kHz, and sea turtles hearing is believed to be far below that level (Ridgway et. al. 1969, Bartol et. al. 1999). The ADCP proposed for deployment at the 30-meter WET site operates 600kHz and would likely be inaudible to sea turtles and marine mammals.

No hearing impacts are expected to result from exposure to the acoustic signature of the ADCP device and any avoidance of the area due to the exposure would be less than 30 meters. Also, based on previous studies used with this equipment, it is expected that exposed animals would quickly adapt/habituate to the sounds such that any behavioral modification or avoidance would be temporary and virtually undetectable. As such, exposure to the acoustic signature of the device would have insignificant effects on marine mammals and sea turtles that may occur in the area.

Wastes and discharges:

The NMFS BMPs require specific measures to be taken to ensure that no contamination of the marine environment shall result from project-related activities. Based on the commitment from the University of Hawaii to comply with the BMPs, any discharges or spills are unlikely to occur. It is expected that if any level of contamination may occur, it would be infrequent, with small amounts, and be quickly cleaned. Therefore, exposure to construction wastes and discharges that may result from project activities would result in insignificant effects on marine species.

In addition, the WET site and the project activities would not occur within areas of hazardous natural bottom conditions or 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.

Federal 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.

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.

Conclusion:

Based on the above information, consultations with the National Marine Fisheries Service, and the project's direct connection with the NWEI WEC device testing project (EE0006056), DOE has determined that this project is consistent with actions covered under DOE CX B5.25; and therefore is 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:

All activities conducted at the 50 and 70 meter test site are prohibited at this time and subject to additional NEPA review.

This restriction does not preclude you from:

Activities at the 30m test site as described in this NEPA determination.

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 :

NEPA review completed by Laura Margason on November 19, 2013.

This determination will require a tailored provision (please utilize the information above under "You are required:" and "Applicant committed measures" in the above determination to assist in the development of the provisional language).

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

☐ 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 :