

PMC-ND

(1.08.09.13)

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

**RECIPIENT:** CalWave Power Technologies Inc**STATE:** CA

**PROJECT TITLE:** CWPT Open Water Demonstration

| <b>Funding Opportunity Announcement Number</b> | <b>Procurement Instrument Number</b> | <b>NEPA Control Number</b> | <b>CID Number</b> |
|--|--------------------------------------|----------------------------|-------------------|
| DE-FOA-0001663                                 | DE-EE0008097                         | GFO-0008097-003            | GO8097            |

Based on my review of the information concerning the proposed action, as NEPA Compliance Officer (authorized under DOE Policy 451.1), 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.)

**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 funding to California Wave Power Technologies, LLC (CalWave) to design, fabricate, conduct laboratory testing, and then field test a 1:6 scale Wave Energy Conversion device (WEC) in an ocean environment.

The proposed project is divided into a total of 10 tasks. DOE previously completed two NEPA reviews which covered Tasks 1-6 (GFO-0008097, CX A9 and B3.6; 8/16/2017; GFO-0008097.002 CX A9 and B3.6; 11/19/2017). This NEPA review is for Tasks 7 – 10.

In subtasks 7.1, 7.2, and 7.3 CalWave would finalize their risk management, deployment, and test plans. Work under these subtasks would be completed by CalWave as well as by subcontractors including the National Renewable Energy Lab, Sandia National Labs, DNV GL, Evergreen Innovation LLC, and Glosten Inc. These subtasks would be limited to information gathering and analysis and would be completed in office environments.

In subtasks 7.4 and 7.5 CalWave would complete procurement and fabrication of the WEC. The basic WEC structure, the outer hull, would be donut shaped. It would be approximately 14 foot wide by 14 foot long by 5 foot tall

with a 5 foot by 5 foot hole in the center. A moveable hatch would cover the top of the hole. It would be fabricated from approximately 12 tons of steel. Fabrication of the structure would occur at a certified shipyard. The hull would then be transported to CalWave's warehouse and production facility in Oakland, California where components would be integrated into the hull. Components would include controls and monitoring electronics, a power take off connected to a four inch mooring belt, and approximately 20 gallons of biodegradable Panoline fluid. All components would be sealed within the WEC device and not be exposed to the ocean environment. The exterior of the WEC would be coated with a marine grade anti-fouling paint. CalWave, and all CalWave employees, would follow the University of California, Berkeley environment, health and safety guidelines during all fabrication and integration work. No modifications to their facility would be required.

Task 8 would involve deployment of the completed WEC and necessary balance of system approximately 1,300 feet from the end of the Scripps Pier near La Jolla, CA. The proposed deployment location is between 65 and 100 feet deep and the benthic environment consists of primarily silt and loose substrate. Equipment would be transported by boat from Driscoll Marina to the test site, located approximately 9 miles north of the marina. The first step in deployment would involve deploying four 30 metric ton gravity anchors and up to four marker buoys at the proposed deployment site. Concurrently with anchor deployment would be deployment of an approximate one inch power cable from the site to the Scripps Pier. The cable would be laid on top of the sandy ocean floor with periodic ten pound sand bags placed on it to hold it in place. The cable would be connected to a pre-existing instrument shed located on the pier. Balance of system land components would be located in the instrument shed. Once anchors and the cable are in place the WEC would be deployed. Deployment of the WEC would involve transporting the WEC from the marina to the deployment site, attaching the WEC to mooring lines which would be attached to the anchors, and attaching the cable to the device. The cable would remain configured in a lazy S configuration during deployment. Mooring lines would remain taut. The ends of the mooring lines which attach to the WEC would transition to 4 inch wide mooring belts which can be winched down to adjust depth of the WEC and tension on the WEC. Once mooring belts are attached to the WEC the WEC would be automatically lowered, by remote control, to a position approximately 3 feet below the surface of the water. Once in place the WEC would remain under the surface of the water at all times.

Deployment of the WEC and balance of systems would be completed by by Driscoll Marina along with CalWave staff, staff from the University of California, San Diego, and staff from the Scripps Research Institute. A main deployment vessel operated by Driscoll Marine and/or Scripps would be used and small rigid hulled inflatable boats would be utilized to support the operations. All staff involved in deployment would be trained in safety procedures. Staff from Driscoll Marina and Scripps Institute complete in water research and device deployments as a regular part of their operations.

Task 9 would involve operation of the WEC at the deployment location for up to one year. Once deployed, the device would remain between 3 and 30 feet below the surface of the ocean, depending upon wave conditions. In operating condition, the hatch on the top of the device would remain closed. Ocean swells would move the device in both vertical and horizontal directions. Movement of the device would change tension on the mooring belt which would be connected to a sealed winch to convert the motion into rotary motion on a drive shaft located within the device. Depth of the WEC device would be automatically adjusted according to ocean conditions. Adjustment of the device, that is movement up or down in the water column, would be infrequent (approximately once per day). In rough sea conditions, the hatch on the top of the device would automatically open allowing water to flow through the donut hole, thus reducing tension on the device. In addition, the device would automatically be lowered to the lowest position (approximately 30 feet below the surface) to further reduce tension. All movement of the device up and down the water column, and opening or closing of the hatch would occur very slowly. It would take approximately 2 minutes for the hatch to open 31.5 inches.

During operation of the device CalWave would collect data from the device via the cable running from the device to the instrument shed on the pier. Data would be analyzed by CalWave.

Deployment and operation of the WEC would require permits or approvals from the US Army Corp of Engineers (permit pending), the California Coastal Commission (wavier received), the State of California Department of Fish and Game (permit granted), The California Water Board (approval pending), the US Coast Guard (Aid to Navigation concurrence received), and the National Marnie Fisheries Service - Marine Mammal division (determination of no permit needed received).

Task 10 would involve decommissioning of the device and analyzing and reporting data. The decommissioning process would be the reverse of the deployment process and would utilize the same personnel.

Tasks 8, 9 and 10 (deployment, operation and decommissioning) would occur off the coast of La Jolla, California in

a coastal state marine conservation area. The proposed deployment location includes Essential Fish Habitat (EFH) designated for groundfish coastal pelagic species, could include marine mammals, and could include eleven species which are listed as threatened or endangered (T&E species) under the Endangered Species Act (ESA). As such, DOE prepared a Biological Assessment (BA) of the proposed project. DOE determined that the proposed project may affect, but is not likely to adversely affect (NLAA) green turtles, loggerhead sea turtles, leatherback sea turtles, olive ridley sea turtles, Guadalupe fur seals, western North Pacific gray whales, blue whales, fin whales, or humpback whales. Further DOE determined that the proposed project would affect but would not adversely affect EFH.

On March 20, 2019, DOE initiated informal consultation with the National Marine Fisheries Service (NMFS) regarding the proposed project. On May 9, 2019, NMFS concurred with DOE regarding DOE's NLAA determination, provided that CalWave adhere to the Best Management Practices identified in the BA (specifically found on page 17 of the NMFS letter of concurrence). Further, NMFS determined that the proposed project would adversely affect EFH due to the fact that there would be placement of an artificial structure in the marine environment. However, NMFS determined that given the small footprint of the structure, the fact that it was located away from sensitive habitat, and the temporary nature of the deployment, that the effects would be temporary and minimal in nature. DOE agrees with this determination. NMFS did not have any EFH Conservation Recommendations regarding the proposed project.

## NEPA PROVISION

DOE has made a final NEPA determination.

Include the following condition in the financial assistance agreement:

Any work proposed to be conducted at a federal facility may be subject to additional NEPA review by the cognizant federal official and must meet the applicable health and safety requirements of the facility.

CalWave shall be required to obtain all necessary local, state and Federal permits and authorizations.

During vessel operations, constant vigilance shall be kept for the presence of marine mammals and ESA-listed species by a NMFS-approved observer.

When piloting vessels, vessel operators shall alter course to remain at least 500 m from whales, and at least 100 m from other marine mammals and sea turtles.

Vessel speed shall be reduced to 10 knots or less when piloting vessels in the proximity of marine mammals, and 5 knots or less in the vicinity of turtles or known/suspected turtle activity.

If approached by a marine mammal or sea turtle, the vessel operator shall put the engine in neutral and allow the animal to pass.

All work (i.e., equipment deployment or retrieval) shall be postponed when whales are within 500 m, or other protected species are within 100 m, and activity would commence only after the animal(s) depart the area.

Notes:

This NEPA determination requires a tailored NEPA provision.  
Water Power Program  
NEPA determination completed by Roak Parker 8.1.2019

## FOR CATEGORICAL EXCLUSION DETERMINATIONS

The proposed action (or the part of the proposal defined in the Rationale above) fits within a class of actions that is listed in Appendix A or B to 10 CFR Part 1021, Subpart D. To fit within the classes of actions listed in 10 CFR Part 1021, Subpart D, Appendix B, a proposal must be one that would not: (1) threaten a violation of applicable statutory, regulatory, or permit requirements for environment, safety, and health, or similar requirements of DOE or Executive Orders; (2) require siting and construction or major expansion of waste storage, disposal, recovery, or treatment facilities (including incinerators), but the proposal may include categorically excluded waste storage, disposal, recovery, or treatment actions or facilities; (3) disturb

hazardous substances, pollutants, contaminants, or CERCLA-excluded petroleum and natural gas products that preexist in the environment such that there would be uncontrolled or unpermitted releases; (4) have the potential to cause significant impacts on environmentally sensitive resources, including, but not limited to, those listed in paragraph B(4) of 10 CFR Part 1021, Subpart D, Appendix B; (5) involve genetically engineered organisms, synthetic biology, governmentally designated noxious weeds, or invasive species, unless the proposed activity would be contained or confined in a manner designed and operated to prevent unauthorized release into the environment and conducted in accordance with applicable requirements, such as those listed in paragraph B(5) of 10 CFR Part 1021, Subpart D, Appendix B.

There are no extraordinary circumstances related to the proposed action that may affect the significance of the environmental effects of the proposal.

The proposed action has not been segmented to meet the definition of a categorical exclusion. This proposal is not connected to other actions with potentially significant impacts (40 CFR 1508.25(a)(1)), is not related to other actions with individually insignificant but cumulatively significant impacts (40 CFR 1508.27(b)(7)), and is not precluded by 40 CFR 1506.1 or 10 CFR 1021.211 concerning limitations on actions during preparation of an environmental impact statement.

The proposed action is categorically excluded from further NEPA review.

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

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

 **Kristin Kerwin**  
NEPA Compliance Officer

Date: 8/2/2019

**FIELD OFFICE MANAGER DETERMINATION**

- Field Office Manager review not required
- Field Office Manager review required

**BASED ON MY REVIEW I CONCUR WITH THE DETERMINATION OF THE NCO :**

Field Office Manager's Signature: \_\_\_\_\_

Field Office Manager

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