

PMC-ef2a

(20402)

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



RECIPIENT: Shift Power Solutions

STATE: CA

**PROJECT TITLE :** Protective, Modular Wave Power Generation System

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0000293	DE-EE0004570	GFO-10-586	0

**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 (including, but not limited to, literature surveys, inventories, audits), data analysis (including computer modeling), document preparation (such as conceptual design or feasibility studies, analytical energy supply and demand studies), and dissemination (including, but not limited to, document mailings, publication, and distribution; and classroom training and informational programs), but not including site characterization or environmental monitoring.
- B3.6** Siting, construction (or modification), operation, and decommissioning of facilities for indoor bench-scale research projects and conventional laboratory operations (for example, preparation of chemical standards and sample analysis); small-scale research and development projects; and small-scale pilot projects (generally less than two years) conducted to verify a concept before demonstration actions. Construction (or modification) will be within or contiguous to an already developed area (where active utilities and currently used roads are readily accessible).

## Rational for determination:

Shift Power Solutions (SPS) is proposing to use DOE funding to design and build a protective, modular wave power generation system. The purpose of this system is two-fold: 1) to harness wave energy as a power source and 2) to protect the structural integrity of breakwaters, embankments and other marine structures. Designing and building a modular wave power generation system and assessing the feasibility and risks associated with the technology are the main goals of the proposed project.

The proposed project involves information gathering and indoor bench-scale research and conventional laboratory operations. All lab work will be conducted at the following two facilities at Oregon State University (OSU) in Corvallis, Oregon. The Wallace Energy Systems & Renewables Facility (WESRF) Lab in Dearborn Hall Room 2, Oregon State University, Corvallis, Oregon, 97331 and the O.H. Hinsdale Wave Research Laboratory (HWRL), 3550 SW Jefferson Way, Oregon State University, Corvallis, OR, 97331. Both WESRF and HWRL adhere to the safety protocols and policy guidelines as set forth by the OSU Environmental Health & Safety (EH&S) rules and regulations. Any liquid waste requiring special handling will be captured in suitable containers and disposed of by OSU's Environmental Health and Safety department. Liquid effluents requiring no special handling (e.g., synthetic sea water) will be discharged to the building's wastewater system. The Large Wave Flume and Tsunami Wave Basin is filled with clean City of Corvallis tap water, and this water is de-chlorinated before discharge.

## Tasks include:

- Task 1.0 - Provide a strong framework
- Task 2.0 - Design system and build a prototype
- Task 3.0 - Understand the design tradeoffs
- Task 4.0 - Design a feasible installation method
- Task 5.0 - Consider risks to see if any make the system infeasible
- Task 6.0 - Improve the overall design
- Task 7.0 - Prepare for the next phase

In Task 1.0, SPS would provide a strong framework for prototype development by initiating a thorough engineering system analysis. The information would include a record of stakeholder needs, design requirements and considerations for the design and prototyping tasks.

In Task 2.0, SPS would design and build a system prototype. The goal would be to analyze the options in order to select the most optimal configuration(s), which minimize the identified risks.



In Task 3.0, SPS would develop an understanding of design tradeoffs and opportunities through numerical modeling and laboratory tests.

In Task 4.0, SPS would design a feasible installation method for the system that is quick and simple to install.

In Task 5.0, SPS would consider the risks of the proposed project to determine if any of those risks would render the project infeasible. Risks considered include environmental impact, survivability, ease of installation and manufacturing. SPS believes that all of these risks can be addressed through investigation and mitigation.

In Task 6.0, SPS would review alternatives for improvement of the overall design of the system. Suggestions for improvements would be evaluated and design changes proposed, if necessary. The objective of this task would be to use the insights gained to maximize the efficacy of the system while minimizing the cost of installation and energy produced.

In Task 7.0, SPS would prepare for the next phase of development. A review of the feasibility, unmitigated risks, costs and benefits of the system will be made in light of the findings, and a go/no-go decision would be made to progress to the next stage.

In view of the information provided by the State and the recipient, DOE has determined that the impacts related to the proposed project are anticipated to have negligible effects to the human and natural environment. The proposed project is consistent with actions outlined in A9 (information gathering) and B3.6 (indoor bench-scale and research and conventional laboratory operations); therefore tasks 1.0 through 7.0 are 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:

Note to Specialist :

EF2a prepared by Cristina Tyler. 11/09/2010.

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

NEPA Compliance Officer Signature:

  
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NEPA Compliance Officer

Date:

11/16/10

**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:

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