

PMC-ND
(1.08.09.13)

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



RECIPIENT: Re Vision Consulting

STATE: CA

PROJECT TITLE
: Controls Optimization of three different WEC devices

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0001182	DE-EE0007173	GFO-0007173-003	G07173

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, 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.) |
| B3.6 Small-scale research and development, laboratory operations, and pilot projects | 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. |

Rationale for determination:

The US Department of Energy (DOE) is proposing to provide federal funding to Re Vision Consulting, LLC (Re Vision), to design, manufacture and test an optimal controls framework that can subsequently be applied to three different wave energy converter devices. Project work would include engineering, design, fabrication, lab testing and wave tank testing, as well as field deployment of measurement buoys in two different locations. DOE previously completed two NEPA reviews, covering Task 1-5 and Task 7. (GFO-0007173-001 CX A9 and B3.6, 11/17/2015; GFO-0007173-002 CX B3.16, 08/02/2016). This review is for subtasks 6.1 – 6.7.

In subtask 6.1 Re Vision would conduct desktop studies to aid in the preparation of a Biological Assessment for future NEPA and permitting review.

In subtask 6.2 Re Vision would conduct design work of the proposed improved in ocean buoy.

In subtask 6.3 Re Vision would develop control algorithms and integrate the algorithms within the proposed platforms to improve code base. Algorithms would be adapted to be able to be applied to full-scale WEC devices.

In subtask 6.4 would involve the migration of code-base (Matlab) to a hardened RT Linux system to enable reliable execution of the control algorithms.

Subtasks 6.1-6.4 would be limited to information gathering, data analysis, document preparation, and information dissemination.

In subtask 6.5 Re Vision would test additional sensors that are used for communication and accurate position estimation at sea. This would include MEMS-based state estimators, GPS position sensors, as well as communication sensors. All sensors would be tested on a test-stand at Re-Vision offices in Sacramento, CA.

In subtask 6.6 Re Vision would test the Power Take Off. This would include testing the direct-drive electric torque motor, ultra-capacitor banks and electric drives. All Power Take Off systems would be tested on a test-stand at Re-Vision offices in Sacramento, CA.

In subtasks 6.7 Re Vision would assemble the system components. This would include the assembly and systems

integration of the improved in-ocean buoy. It would also include the functional testing of the buoy in on a test-stand. All work will be carried out at the Re Vision office in Sacramento, CA.

No modifications would need to be made to the Re Vision facilities for any of the work in subtasks 6.1 to 6.7.

Subtask 6.8 would include in ocean testing of the buoy. The location of testing has not yet been determined. In addition, biological information regarding the testing location has not been provided to DOE. As such, there is not enough information to review this subtask at this time.

Based on the review of the proposal, DOE has determined subtasks 6.1 – 6.7 of the proposal fit within the class of action(s) and the integral elements of 10 CFR 1021 subpart B outlined in the DOE categorical exclusion(s) selected above. DOE has also determined that: (1) there are no extraordinary circumstances (as defined by 10 CFR 1021.410(2)) related to the proposal that may affect the significance of the environmental effects of the proposal; (2) the proposal has not been segmented to meet the definition of a categorical exclusion; and (3) the proposal is not connected to other actions with potentially significant impacts, related to other proposals with cumulatively significant actions, or an improper interim action. Subtasks 6.1-6.7 of this proposal 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 6.8 Testing at an In Ocean Site](#)

This restriction does not preclude you from:

[Subtask 6.1 Permitting/NEPA](#)

[Subtask 6.2 Design of In-Ocean Unit](#)

[Subtask 6.3 Controls Algorithm Development](#)

[Subtask 6.4 RT HW/SW Integration](#)

[Subtask 6.5 Instrumentation and Validation](#)

[Subtask 6.6 PTO/Drive Integration and Functional Testing](#)

[Subtask 6.7 Assembly/build of in-ocean unit](#)

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 NEPA determination does require a tailored NEPA provision](#)

[Water Power Program](#)

[NEPA review completed by Roak Parker. 3/22/2018](#)

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature: _____

 Electronically Signed By: [Kristin Kerwin](#)

NEPA Compliance Officer

Date: 3/23/2018

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: _____

Date: _____

Field Office Manager

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