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

RECIPIENT: Ricardo, Inc. **STATE:** MI

PROJECT TITLE: Administration of the Wave Energy Converter (WEC) Prize

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
	DE-EE0006738	GFO-0006738-004	GO6738

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 U.S. Department of Energy (DOE) is proposing to provide federal funding to Ricardo, Inc. for the administration of the Wave Energy Converter (WEC) Prize Challenge in order to attract innovative ideas from developers new to the industry and next generation ideas from existing developers by offering a monetary prize purse and providing an opportunity for tank testing and evaluation of scaled WEC prototypes.

The project plan has been broken down into five (5) phases:

Phase 1: Competition Planning Stage
Phase 2: Competition Design Stage
Phase 3: Competition Build Stage
Phase 4: Competition Test and Evaluation Stage
Phase 5: Post-Competition Publicity & Wrap-up

DOE has completed three NEPA determinations (GFO-0006738-001, CX-A9, and CX-B3.6, 9/05/2014; GFO-0006738-002, CX-A9 and CX-B3.6, 6/3/2015; GFO-0006738-003, CX-A9 and CX-B3.6, 9/8/2015) for activities associated with Phases 1, 2 and 5 which included prize development (rules and process), prize promotion and communication, competition publicity and evaluation, administrative implementation and oversight of the competition stages (design, build, test & evaluation), management of the "seed" funding and monetary prize awards, and establishing sub-contracts with wave tank testing facilities across the country. Wave tanks which have been contracted to perform 1/50th scale testing include The University of Michigan in Ann Arbor, MI, The Stevens Institute of Technology in Hoboken, NJ, The University of Maine in Orono, ME, Oregon State University in Corvallis, OR, and The University of Iowa in Iowa City, IA. The MASK Basin Facility at the Naval Surface Warfare Center Carderock Division has been contracted to perform the 1/20th scale testing. The purpose of this NEPA determination is to review activities associated with Phases 3 and 4 as described in the Statement of Project Objectives.

The proposed project activities relevant to this review would include the design, fabrication and testing, by the below named competitors, of 1/50th and 1/20th scale models of various iterations of wave energy conversion technology;

collection and analysis of data; and reporting of results. Participating competitors are as follows:

- IOwec; MIT Sea Grant College Program; MA
- Wavefront Power; NC
- Enorasy Labs; MA
- OceanEnergy USA; CA
- Waveswing America; CA
- M3 Wave; OR
- RTI Wave Power; ME
- Principle Power; CA
- Super Watt Wave Catcher; TX
- Mocean Energy; MD
- SEWEC; CA
- Sea Potential; RI
- Wave Energy Conversion of America (WECCA); MD
- Advanced Ocean Energy; VA
- Float Inc. Berger ABAM; CA
- Oscilla Power; WA
- Atlas Ocean Systems; TX
- CalWave; CA
- AquaHarmonics; OR

Some competitors would conduct in-water testing of their WEC devices prior to delivery of the device to DOE for official testing. In-water testing would consist of still water tank testing, whereby the competitor immerses the device in water to check for flotation and buoyancy, or wave tank testing whereby the participant would test their device in a wave tank facility. All still water testing facilities are pre-existing facilities which consist of a water tank of various designs. No liquids would be used in these tests except water. All water used would be recycled. All wave tank testing which would be completed by participants prior to submission of their device to DOE would occur in pre-existing wave tank facilities to include the following:

- O'Brien Hall at UC Berkeley in Berkeley, CA
- Towing Tank Lab at MIT in Cambridge, MA
- The Fluid Mechanics Lab at Virginia Tech in Blacksburg, VA
- M3 Wave Lab in Salem, OR
- The Ocean Engineering Wave Tank at Texas A&M University in College Station, TX
- Jere A. Chase Ocean Engineering Laboratory at the University of New Hampshire in Durham, NH

These facilities were purpose-built for this type of testing; therefore, no new construction, groundbreaking, modifications or new permits, additional licenses and/or authorizations would be necessary

Materials for fabrication would include common materials such as steel, aluminum, plywood, plastic, and foam. All materials which would be used are non-hazardous. Waste materials associated with fabrication would either be recycled or disposed of through regular municipal waste streams in accordance with local, state and federal guidelines. Therefore, no siting, construction or major expansion of waste storage, disposal, recovery, or treatment actions/facilities would be required. Existing lab health and safety policies and procedures would be followed at all times.

In Task 49, within Phase 5, Ricardo proposes to conduct an "award event". Phase 5 was reviewed and CXed by DOE on 6/3/2015. However, if the recipient should propose to conduct any in-water demonstration activities as part of the "award event", these activities would be subject to additional NEPA review.

Based on the information above, DOE has determined that Phases 3 and 4 are consistent with actions outlined in DOE categorical exclusions A9 "Information gathering, data analysis, and information dissemination" and B3.6 "small-scale research and conventional laboratory operations" and B2.4 "Equipment qualification" and is therefore 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:
In Task 49, within Phase 5, Ricardo proposes to conduct an "award event". Phase 5 (including task 49) was reviewed and CXed by DOE on 6/23/2015. However, if the recipient should propose to conduct any in-water demonstration activities as part of the "award event", these activities would be subject to additional NEPA review.

If any of the competitors propose to utilize a test location that is not included in the list below, additional NEPA review by DOE is required prior to initiating work.

- O'Brien Hall at UC Berkeley in Berkeley, CA
- Towing Tank Lab at MIT in Cambridge, MA
- The Fluid Mechanics Lab at Virginia Tech in Blacksburg, VA
- M3 Wave Lab in Salem, OR
- The Ocean Engineering Wave Tank at Texas A&M University in College Station, TX
- Jere A. Chase Ocean Engineering Laboratory at the University of New Hampshire in Durham, NH

Note to Specialist :

Water Power Program
This NEPA determination requires a tailored NEPA provision.
Review completed by Rebecca McCord, 11/05/2015

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature: _____ Date: 11/5/2015
NEPA Compliance Officer

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