

PMC-EF2a

(2010)

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



RECIPIENT: University of California, Davis

STATE: CA

**PROJECT TITLE :** Active Flow Control on Bidirectional Rotors for Tidal MHK Applications

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0000293	DE-EE0004568	GFO-0004568-001	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.

## Rational for determination:

The University of California, Davis (UCD) is proposing to use DOE funding for computer modeling to improve the design of the bidirectional rotor tidal turbine (BRTT) for tidal marine hydrokinetic (MHK) applications. The BRTT design, an already established and commercially applied technology, has disadvantages. Although the simpler design reduces energy costs, without pitch-adjustment and optimally cambered blades, the BRTT rotor is relatively inefficient. UCD is proposing to recapture some of the performance shortcomings of the BRTT concept using microtabs to improve blade aerodynamics and rotor performance.

The proposed study would be conducted at two computer labs at the University of California, Davis campus located at One Shields Avenue, Davis, California 95616. The facility in the Academic Surge Building is a multi-person office shared by four to eight researchers. The facility in Bainer Hall is a single-person office. Both facilities adhere to OSHA safety protocols administered by the UCD Safety Services Department and Fire Department.

During the twelve month period, the primary objective of the proposed project would be to perform computational analysis and cost modeling to develop a BRTT design with a microtab active flow control system. Software microtabs would be used to optimize hydrofoils and blade planforms. The feasibility and economics of a corresponding turbine using a more efficient rotor design would be analyzed.

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).

**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 on 11/30/2010.

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

NEPA Compliance Officer Signature:   
NEPA Compliance Officer

Date: 11/30/10

**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: \_\_\_\_\_