

PMC-ND

(1.08.09.13)

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

**RECIPIENT:**Composite Technology Development, Inc.**STATE:** CO**PROJECT TITLE** : The Design and Development of a Composite Hydropower Turbine Runner

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0001286	DE-EE0007248	GFO-0007248-001	

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 Composite Technology Development Inc. (CTD), to develop and test a weight efficient, fatigue resistant low maintenance alternative for a low-head hydro-turbine runner designs using composite materials.

Activities associated with the proposed project would include literature review, design, selection and procurement of materials, lab testing of selected combinations of materials, fabrication, in water lab testing, data analysis, and reporting. Activities associated with the literature review, design, selection and procurement of materials, lab testing of composite material, fabrication, data analysis and reporting would take place at CTD offices in Lafayette, Colorado and/or the offices of Tribologix, Inc., in Golden, Colorado. Laboratory activities would be conducted in a laboratory environment with existing materials handling and disposal policies. Fabrication would be conducted in CTD's existing fabrication facility

CTD would conduct a literature review and do prototype design at their facility in Lafayette. CTD would then fabricate full scale prototype blades. Blades would be constructed out of stainless steel, foam, glass and carbon fibers, and epoxy resins. Blades would be a maximum of approximately 18 inches long. Prototype blades would be stress tested at the CDT labs. After lab testing, a full scale prototype blade and runner system would be fabricated. The full scale system would be a maximum of three feet in diameter and ten feet long, though it likely would be smaller than this depending upon final design. The full scale system would then be tested at the Penn State University Applied Research Laboratory (ARL) in State College, Pennsylvania. The ARL is a purpose built water testing facility that was designed to conduct tests such as the proposed tests for this project.

CTD would conduct data analysis and reporting based on the ARL testing.

No change in the use, mission or operation of existing facilities would arise out of this effort. No hazardous materials would be utilized during the course of this project and none of the utilized technologies create emissions. No adverse impacts to sensitive resources are expected as a result of the proposed project.

Based on review of the project information and the above analysis, DOE has determined that the proposed project would not have a significant individual or cumulative impact to human health and/or environment. DOE has determined these tasks are consistent with actions contained in DOE categorical exclusion A9 "information gathering, analysis, and dissemination," and, B3.6 "small scale research and development, laboratory operations, and pilot projects," and 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:

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.

Note to Specialist :

This NEPA determination does not require a tailored provision.

Wind and Water Program

NEPA determination completed by Roak Parker

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature: _____



Electronically Signed By: Kristin Kerwin

NEPA Compliance Officer

Date: 1/4/2016

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: _____