

PMC-ND

(1.08.09.13)

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

**RECIPIENT:**Percheron Power, LLC**STATE:** WA**PROJECT TITLE** : Optimized Composite Prototype for Archimedes Turbine Manufacture

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0001286	DE-EE0007427	GFO-0007427-001	

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 Percheron Power, LLC to transform the current Archimedes Hydrodynamic Screw (AHS) technology for rapid deployment in the U.S. by reducing the levelized cost of electricity (LCOE) and overcoming the limitations of the present steel turbines.

Proposed activities would include the design, analyses, development, fabrication and laboratory testing of AHS turbines made of composite materials. Much of the equipment for the turbine test assembly would be procured from equipment suppliers, although the turbine blades themselves would be fabricated and assembled as part of this project. Development, fabrication, and component testing would be completed by Hertelendy Research Associates at their facility in West Richland, WA. Assembly and laboratory testing of the bench-scale assemblies would be completed by Mid Columbia Engineering at their facility in Richland, WA. The Utah Water Research Laboratory (UWRL) would complete lab testing for the prototype turbines. Percheron Power, LLC would be collaborating with the Pacific Northwest Laboratory (PNNL) as part of the new DOE Voucher Program. PNNL's efforts on the composite AHS turbine would be focused on performance modeling through computational Fluid Dynamics and Finite Element Analyses completed at their labs in Richland, WA. The proposed work is within and consistent with the normal uses of the existing facilities. No new permits, licenses, or authorizations are required. The water testing at the UWRL would involve temporarily diverting water through the facility. However, such water diversions are part of the mission, objectives and normal operations of the existing facility and fall within the existing water rights held by the UWRL.

The proposed project would utilize the established health and safety policies and procedures for each laboratory test facility, including employee training, proper protective equipment, material handling/Material Safety Data Sheets (MSDS), test procedures and controls, water management, and internal risk assessments. Any work proposed to be conducted at a DOE laboratory may be subject to additional NEPA review by the cognizant DOE NEPA Compliance Officer for the specific DOE laboratory prior to initiating such work. Further, any work conducted at a DOE laboratory must meet the laboratory's health and safety requirements.

No hazardous materials or wastes are anticipated in association with this proposed project. Non-hazardous wastes would be limited to paper, fiber trimmings, styrofoam, lumber, and excess steel. No emissions would be produced and

no health and safety hazards have been identified. No siting, construction or major expansion of waste storage, disposal, recovery, or treatment actions/facilities would be required.

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

Any work proposed to be conducted at a DOE laboratory may be subject to additional NEPA review by the cognizant DOE NEPA Compliance Officer for the specific DOE laboratory prior to initiating such work. Further, any work conducted at a DOE laboratory must meet the laboratory's health and safety requirements.

Note to Specialist :

Water Power Technologies Office

This NEPA determination requires a tailored NEPA provision.

Review completed by Rebecca McCord on 1/8/2016

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature: _____

NEPA Compliance Officer

Date: 1/12/2016

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: _____