

PMC-ND

(1.08.09.13)

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

**RECIPIENT:** Littoral Power Systems Inc.**STATE:** MA

PROJECT TITLE: Device for Economically Harvesting Energy from Low-Velocity Currents

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0001837	DE-EE0008628	GFO-0008628-001	GO8628

Based on my review of the information concerning the proposed action, as NEPA Compliance Officer (authorized under DOE Policy 451.1), 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 funding to Littoral Power Systems Inc. (LPS) to further develop a novel turbine system, the XCT System, in order to mature the current design and reduce technical risks associated with the existing model design. A fully integrated prototype of the XCT turbine system would be developed and tested to validate its performance.

Tasks 1-6 would center on system design, analysis, system development, component fabrication, laboratory testing, and field-test planning. Tasks 7-8 would consist of the fabrication of two prototype turbines and field testing of the prototypes. Task 9 would consist of ongoing project management that would be performed throughout the life of the project. This NEPA determination will only review Tasks 1-6 and Task 9, which consists of ongoing project management that would be performed throughout the life of the project. There is insufficient information available at this time to complete a meaningful NEPA review for Tasks 7 and 8. Tasks 7 and 8 are restricted until further NEPA review is completed. Additional NEPA review will be completed, once all relevant information has been provided by the Recipient.

Tasks to be performed would include the following:

- Task 1: Define Turbine Requirements
- Task 2: Develop Detailed Prototype Design
- Task 3: Conduct Numerical Modeling and Simulation
- Task 4: Conduct Laboratory Component Validation Tests
- Task 5: Finalize critical system design and plan system test
- Task 6: Develop Final Test Plan
- Task 9: Project Management

All project activities would be performed by LPS and its project partners at existing, purpose-built facilities. LPS would oversee the project, perform analysis work, and develop system requirements and concept designs at its

office facility in Fall River, MA. GE Global Research would perform design work and would complete bench-scale testing of system components at its research campus in Niskayuna, NY. Turbo Solutions would perform design, analysis and computational modeling at its office in Thetford, VT. Alden Research Laboratory would perform engineering design, analysis and computational fluid dynamics modeling at its laboratory facility and office space in Holden, MA. Additionally, LPS would consult with the University of Alaska (Fairbanks, AK) and Florida Atlantic University (Boca Raton, FL) on the engineering criteria for the prototypes and test planning, as later testing under BP2 may be performed at one of these institutions' test sites. No change in the use, mission or operation of existing facilities would be required as part of this project. Likewise, no additional permits or authorizations would be required.

Project activities would involve the use and handling of industrial chemicals, electrical components, and machinery with moving parts. All laboratory work would be performed at the facilities of GE Global Research and Alden Research Laboratory. Both entities have existing corporate health, safety, and environmental policies and procedures that would be adhered to. Protocols would include employee training, use of personal protective equipment, engineering controls, monitoring and internal assessments. LPS and its project partners would observe all applicable Federal, state, and local health, safety, and environmental regulations.

NEPA PROVISION

DOE has made a conditional NEPA determination.

The NEPA Determination applies to the following Topic Areas, Budget Periods, and/or tasks:

Task 1: Define Turbine Requirements
Task 2: Develop Detailed Prototype Design
Task 3: Conduct Numerical Modeling and Simulation
Task 4: Conduct Laboratory Component Validation Tests
Task 5: Finalize critical system design and plan system test
Task 6: Develop Final Test Plan
Task 9: Project Management

The NEPA Determination does not apply to the following Topic Area, Budget Periods, and/or tasks:

Task 7: Fabricate Prototypes
Task 8: Test and Analyze Prototype

Notes:

Water Power Technologies Office
This NEPA determination requires a tailored NEPA provision.
Review completed by Jonathan Hartman, 03/21/2019

FOR CATEGORICAL EXCLUSION DETERMINATIONS

The proposed action (or the part of the proposal defined in the Rationale above) fits within a class of actions that is listed in Appendix A or B to 10 CFR Part 1021, Subpart D. To fit within the classes of actions listed in 10 CFR Part 1021, Subpart D, Appendix B, a proposal must be one that would not: (1) threaten a violation of applicable statutory, regulatory, or permit requirements for environment, safety, and health, or similar requirements of DOE or Executive Orders; (2) require siting and construction or major expansion of waste storage, disposal, recovery, or treatment facilities (including incinerators), but the proposal may include categorically excluded waste storage, disposal, recovery, or treatment actions or facilities; (3) disturb hazardous substances, pollutants, contaminants, or CERCLA-excluded petroleum and natural gas products that preexist in the environment such that there would be uncontrolled or unpermitted releases; (4) have the potential to cause significant impacts on environmentally sensitive resources, including, but not limited to, those listed in paragraph B(4) of 10 CFR Part 1021, Subpart D, Appendix B; (5) involve genetically engineered organisms, synthetic biology, governmentally designated noxious weeds, or invasive species, unless the proposed activity would be contained or confined in a manner designed and operated to prevent unauthorized release into the environment and conducted in accordance with applicable requirements, such as those listed in paragraph B(5) of 10 CFR Part 1021, Subpart D, Appendix B.

There are no extraordinary circumstances related to the proposed action that may affect the significance of the environmental effects of the proposal.

The proposed action has not been segmented to meet the definition of a categorical exclusion. This proposal is not connected to other actions with potentially significant impacts (40 CFR 1508.25(a)(1)), is not related to other actions with individually insignificant but cumulatively significant impacts (40 CFR 1508.27(b)(7)), and is not precluded by 40 CFR 1506.1 or 10 CFR 1021.211 concerning limitations on actions during preparation of an environmental impact statement.

A portion of the proposed action is categorically excluded from further NEPA review. The NEPA Provision identifies Topic Areas, Budget Periods, tasks, and/or subtasks that are subject to additional NEPA review.

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature:  _____ Date: 3/22/2019
NEPA Compliance Officer

FIELD OFFICE MANAGER DETERMINATION

- Field Office Manager review not required
- Field Office Manager review required

BASED ON MY REVIEW I CONCUR WITH THE DETERMINATION OF THE NCO :

Field Office Manager's Signature: _____ Date: _____
Field Office Manager