

PMC-ND

(1.08.09.13)

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

**RECIPIENT:** Natel Energy, Inc.**STATE:** CA

PROJECT TITLE: Advanced Compact Generation Module with Fish Safe Runner Technology

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0002080	DE-EE0008946	GFO-0008946-001	

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 Natel Energy to develop the concept design for a low-head generation hydroelectric turbine. Natel Energy would focus on the development of modular turbine designs that can provide safe passage for fish, as well as turbine runner blades that would reduce fish mortality rates. A prototype turbine runner would be developed, fabricated, and tested as part of the project.

This project would be completed over two Budget Periods (BPs), with a Go/No-Go Decision Point in between each BP. BP1 Subtasks 2.2 and 2.3 would include test site preparation (e.g. equipment installations and modifications) and live fish passage testing, respectively. Natel Energy would need to complete all applicable permitting processes prior to undertaking installation or fish testing activities. This process would be completed as part of BP1 Subtask 2.1. Accordingly, this NEPA Determination will be applicable to BP1 Tasks 1, Subtask 2.1, and Tasks 3 – 7. BP1 Subtasks 2.2 and 2.3, as well as all BP2 activities are restricted until the relevant information is submitted to DOE, at which time, a follow-up review would be performed.

Permitted BP1 activities would focus on system level design of the proposed module, fish testing design/preparation, and in-lab material characterization activities.

Specific work activities would include the following:

Task 1: This task would consist of the assessment and down-selection of potential module system configurations. System requirements and specifications would be developed for sub-module components and module interfaces. Performance modeling (e.g. computational fluid dynamics) and cost modeling would be performed as well. A design package would be developed from this information and submitted to Oak Ridge National Laboratory ('ORNL' – Oak Ridge, TN) for review.

Subtask 2.1: This subtask would include all work activities required to prepare for fish testing. This would include development of a testing plan and biological assessment, as well as completion of any applicable permitting requirements for testing. Natel Energy would coordinate with Pacific Northwest National Laboratory ('PNNL' – Richland, WA) to complete all planning and permitting activities, as PNNL would be actively involved with fish testing, if approved.

Tasks 3 – 6 would consist of design work associated with various sub-modules and associated components. These would include the structural framing elements (e.g. components that house the generator, tie together various subcomponents, and mount the module to the foundation), housing and guide-vane submodule, powertrain submodule, and runner submodule. Design specifications and interface requirements for these subcomponents would be defined. Civil works and cost requirements assessments would also be performed.

Material testing would be performed for the runner submodule. This would consist of the production of material coupons, coupon coating, and mechanical testing/durability testing (e.g. erosion assessments). No fabrication activities would be performed as part of this task, or at any other point during BP1.

Task 7: This task would consist of project management and reporting activities, which would be ongoing throughout the entirety of the project.

All project activities would be coordinated by Natel Energy. Design work and material testing would be performed by Natel Energy at its facility in Alameda, CA. Additional design work and planning/permitting activities would be performed by PNNL at its laboratory facility in Richland, WA. No physical modifications to existing facilities, ground disturbing activities, or changes in the use, mission, or operation of existing facilities would be required for the completion of the project activities reviewed. Likewise, no additional permits or authorizations would need to be obtained.

Project work would involve the use and handling of laboratory/machining equipment. Risks associated with the completion of project activities would be mitigated through adherence to established corporate health and safety policies and procedures. Protocols would include employee training, use of personal protective equipment, adherence to standard operating procedures, engineering controls, monitoring, and internal assessments.

Any work proposed to be conducted at a federal facility may be subject to additional NEPA review by the cognizant federal official and must meet the applicable health and safety requirements of the facility.

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: System Level Design of Proposed Generation Module
Subtask 2.1: Test Design and Assessment
Task 3: Structures Sub-Module Design Task
Task 4: Housing & Guidevane Sub-Module Design Task
Task 5: Powertrain Sub-Module design
Task 6: Runner Sub-Module Design Task
Task 7: Project Management and Reporting

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

Subtask 2.2: Test Site Preparation
Subtask 2.3: Test Execution and Data Analysis
Task 8: System Level Design: Ongoing Review, Costing, and Final Assessments
Task 9: Full Scale Runner Fabrication
Task 10: Full Scale Runner Testing
Task 11: Runner Design Revisions
Task 12: Fish Strike Laboratory Testing
Task 13: Project Management and Reporting, Period 2

Notes:

Water Power Technologies Office
This NEPA determination requires a tailored NEPA provision.
Review completed by Jonathan Hartman, 03/30/2020

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: _____

 **Electronically Signed By: Roak Parker**
NEPA Compliance Officer

Date: 3/31/2020

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: _____

Field Office Manager

Date: _____