

PMC-ND

(1.08.09.13)

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



RECIPIENT: Water Power Technologies Office 2019 Research Funding Opportunity

STATE: NY

PROJECT TITLE: Increasing Operational Flexibility of Francis Turbines at Low Head Sites, Through Analytical and Empirical Solutions

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0002080	DE-EE0008942	GFO-0008942-001	G08942

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.

B5.15 Small-scale renewable energy research and development and pilot projects Small-scale renewable energy research and development projects and small-scale pilot projects, provided that the projects are located within a previously disturbed or developed area. Covered actions would be in accordance with applicable requirements (such as local land use and zoning requirements) in the proposed project area and would incorporate appropriate control technologies and best management practices.

Rationale for determination:

The U.S. Department of Energy (DOE) is proposing to provide funding to General Electric Research (GE) to demonstrate the potential to increase the operational efficiency of low head Francis turbines. Work would include data gathering and analysis, modeling, field testing and laboratory testing.

GE would gather data regarding operations at High Rock, an existing hydro facility located in Denton, North Carolina. GE would then develop a workplan for conducting an onsite measurement campaign of one of three Francis turbines at the facility. The turbine to be studied, turbine number 3, is currently undergoing rehabilitation and is set to receive a new runner. The runner to be installed is at the GE facility in Sorel-Tracy, Quebec, Canada where it will be inspected and instrumented with sensors. The runner will then be shipped to North Carolina for installation. GE would also install data logger and other sensory equipment at the turbine site during the rehabilitation process, prior to installation of the new runner. Once the new runner is installed High Rock would resume operation of the turbine. Operation of the turbine would continue with adjustments made to water flow during operation. During operation GE would gather data from the installed sensors under the variety of water flow conditions. Data on turbine number 3 would be gathered for a period of several weeks. Once data has been collected sensors would be removed from the equipment. Turbines numbers 1 and 2 would not be impacted by the proposed research.

Work at High Rock would include working in and around a hydroelectric turbine. Work would be performed by qualified personnel and would follow existing corporate health and safety procedures. No new permits would be needed. There are no Endangered Species Act listed species or critical habitats located at or near the High Rock turbine site. As such, DOE finds that this proposed field work would have No Effect on listed species and/or their critical habitat.

In addition to the field testing, GE would conduct laboratory testing of a scale runner. This would include fabrication of

a scale model runner using approximately 40 kg of stainless steel. Fabrication would occur at GE's fabrication facility in Grenoble, France. The runner would then undergo lab testing at GE's indoor testing facility also located in Grenoble. These facilities are preexisting facilities designed to conduct the type of fabrication and research being proposed for this project. All existing corporate health and safety practices would be followed in the fabrication and testing of the runner.

Data gathered from both field and lab testing would be analyzed at GE facilities in France, Canada, and/or Niskayuna, New York. In addition, GE would conduct additional information gathering and analysis such as modeling, grid simulation, and technology to market analysis. These activities would primarily occur at the GE facility in New York.

NEPA PROVISION

DOE has made a final NEPA determination.

Notes:

Water Power Technologies Office
This NEPA determination does not require a tailored NEPA provision.
Review completed by Roak Parker, June 9, 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.

DOE has determined that work to be carried out outside of the United States, its territories and possessions is exempt from further review pursuant to Section 5.1.1 of the DOE Final Guidelines for Implementation of Executive Order 12114; "Environmental Effects Abroad of Major Federal Actions."

The proposed action is categorically excluded from further NEPA review.

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature:


NEPA Compliance Officer

Date: 6/9/2020

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: