

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



RECIPIENT: Electric Power Research Institute

STATE: MD

PROJECT TITLE: Machine Learning and Data Analytics for Automated Detection, Identification, enumeration, and tracking of Migrating Adult Eels from Sonar Data

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0001662	DE-EE0008341	GFO-0008341-001	

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 funding to Electric Power Research Institute (EPRI) to develop machine-learning based detection of American eels from Adaptive Resolution Imaging Sonar (ARIS). EPRI would use existing data, collected from the Iroquois Water Control Dam on the St. Lawrence River in New York, along with new data generated from laboratory experiments, to train a convolutional neural network (CNN) to detect eels and differentiate them from non-eel targets.

Proposed project activities would include data collection and analysis, computer modelling (e.g. wavelet transform analysis and CNN analysis), in-lab sonar imaging, performance analysis (e.g. detection accuracy of CNN), and development of a market transformation plan. Data analysis and computer-based analytics would be conducted by EPRI (Glenelg, MD). All activities involving laboratory work, as well as additional data analysis/computer modelling, would be completed at the Aquatic Research Laboratory (ARL) and Bio-Acoustics & Flow Laboratory, at the Pacific Northwest National Laboratory ('PNNL' – Richland, WA). All facilities in which work would be conducted are pre-existing, purpose built facilities that have conducted work similar to that included as part of this award. No change in the use, mission, or operation of existing facilities would result from any of the proposed project activities.

Laboratory testing at PNNL would consist of the collection of sonar image data from large American eels and other objects in a tank measuring approximately 23.8 ft. long x 10.6 ft. wide x 5.9 ft. tall. Sonar imaging would be performed using a Teledyne Blueview M900/2250 sonar system. Live American eels would be used for testing. The American eel is not classified as a threatened or endangered species by the U.S. Fish and Wildlife Service. Only eels already

obtained by ARL would be used. All procedures and protocols issued by the Institutional Animal Care and Use Committee (IACUC), under the National Institutes of Health (NIH), would be adhered to throughout the testing activities and for disposal of specimens. Upon completion of the project, the tank and laboratory equipment would continue to be used by PNNL. No additional permits would need to be acquired by EPRI or any of its project partners to carry out any of the project activities. EPRI and its project partners would adhere to all local, state, and Federal health, safety and environmental standards when conducting any of the work activities included as part of this project.

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.

Based on the review of the proposal, DOE has determined the proposal fits within the class of action(s) and the integral elements of Appendix B to Subpart D of 10 CFR 1021 outlined in the DOE categorical exclusion(s) selected above. DOE has also determined that: (1) there are no extraordinary circumstances (as defined by 10 CFR 1021.410(2)) related to the proposal that may affect the significance of the environmental effects of the proposal; (2) the proposal has not been segmented to meet the definition of a categorical exclusion; and (3) the proposal is not connected to other actions with potentially significant impacts, related to other proposals with cumulatively significant actions, or an improper interim action. This proposal is 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 the Recipient intends to make changes to the scope or objective of this project, the Recipient is required to contact the Project Officer, identified in Block 15 of the Assistance Agreement before proceeding. The Recipient must receive notification of approval from the DOE Contracting Officer prior to commencing with work beyond that currently approved. If the Recipient moves forward with activities that are not authorized for Federal funding by the DOE Contracting Officer in advance of a final NEPA decision, the Recipient is doing so at risk of not receiving Federal funding and such costs may not be recognized as allowable cost share.

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.
NEPA review completed by Jonathan Hartman, 08/01/2018

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature:

Electronically
Signed By

Kristin Kerwin

NEPA Compliance Officer

Date:

8/2/2018

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: _____