

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



RECIPIENT: University of Pittsburgh

STATE: PA

PROJECT TITLE : Fusion of Low Cost Sensors and Distributed Analytics for Enhanced Behind the Meter Visibility

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0002437	DE-EE0009632	GFO-0009632-001	GO9632

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 the University of Pittsburgh to develop and validate new sensing and measurement technologies that could be used by under-served rural and small electric utilities. These technologies would be used to understand behind the meter energy use (i.e. energy use onsite, before passing through a meter) in order to improve the adoption of PV, energy storage, and other renewables. Project participants would design, develop, and test sensors within a lab environment. They would also explore the integration of sensors and data analytics technologies and develop new analytics methods. Sensor and analytics technologies would be installed within utility distribution systems for validation and benchmarking. The project would be completed over three Budget Periods (BPs) with a Go/No-Go decision point between each BP. This NEPA determination is applicable to all three BPs.

New sensor technologies would be developed that would improve real-time monitoring capabilities for collecting data relating to energy usage behind the meter. Sensors would be tested in a laboratory setting then with utility partners with existing sensing systems for integration into the team's data analytics platform. Installed sensors would be used for further research into optimization of interfaces and development and integration of new analytics. Guidelines would be developed to deploy these advanced sensing technologies in rural environments.

The University of Pittsburgh would oversee the project. They would develop and test sensors and conduct material deposition, characterization, and data analysis. North Carolina State University would perform hardware in the loop testing, inverter control testing, and data analysis. Sensor development and testing, nanofabrication, and electromagnetic measurements would occur at Sandia National Laboratory. GE Research in Niskayuna, NY would perform data assimilation, simulations, data analytics design, and validations. Installation of commercial sensors and collection/distribution of data would occur at facilities who are utility partners of the National Rural Electric Cooperative Association. These exact facilities would be determined in BP1. All sensors would be installed on existing equipment and would not require facility modifications or ground disturbance. Installation would occur according to established procedures based upon standard operating procedures of the utility partners and

commercial sensor vendor manufacturer. No changes in the use, mission, or operation of existing facilities would be required as part of this project and no additional permits would be required in order to conduct any of the work activities.

All lab tests conducted would be done in adherence to all necessary state and federal safety protocols. Nanoparticles for sensor probes would be bound and embedded within a matrix at all stages of fabrication. All waste products would be disposed of by licensed waste management service providers. University of Pittsburgh and its project partners would observe all applicable Federal, state, and local health, safety, and environmental regulations.

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 final NEPA determination.

Notes:

Solar Energy Technologies Office

This NEPA determination does not require a tailored NEPA provision.

Review completed by Shaina Aguilar on 12/3/21.

## 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.

The proposed action is categorically excluded from further NEPA review.

## SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature:

 Electronically Signed By: Kristin Kerwin

NEPA Compliance Officer

Date: 12/3/2021

## 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: \_\_\_\_\_