

PMC-ND

(1.08.09.13)

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



RECIPIENT: The George Washington University

STATE: DC

PROJECT TITLE: Urban Combined Heat and Power with Integrated Renewables and Energy Storage

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0001980	DE-EE0009140	GFO-0009140-001	

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.
- B2.2 Building and equipment instrumentation** Installation of, or improvements to, building and equipment instrumentation (including, but not limited to, remote control panels, remote monitoring capability, alarm and surveillance systems, control systems to provide automatic shutdown, fire detection and protection systems, water consumption monitors and flow control systems, announcement and emergency warning systems, criticality and radiation monitors and alarms, and safeguards and security equipment).

Rationale for determination:

The U.S. Department of Energy (DOE) is proposing to provide funding to The George Washington University (GW) to investigate methodologies for integrating electricity generation and energy storage components into urban district energy systems ('DESs' – centralized networks of thermal energy connections for heating individual buildings). GW would develop and test an energy management system ('EMS' – a simulation tool) for DES applications. The EMS would serve to model a DES with Combined Heat and Power (CHP), renewable photovoltaic (PV) power generation, battery storage, and thermal storage. An existing DES at GW's Washington DC campus would be used to gather data to inform the development of the EMS.

Proposed project activities would include software/control algorithm development, data analysis, hardware-in-the-loop (HIL) testing, and techno-economic modeling. All project work would be performed by GW at existing, purpose-built laboratory facilities at its campus in Washington, DC.

For HIL testing, a laboratory testbed would be assembled and installed at GW's Smart Grid Laboratory. The testbed would measure approximately 16.5 ft. x 13 ft. and would consist of several commercial hardware components and computers to run simulation software. The testbed would be assembled and installed on site. Electrical connections would be established. No facility modifications would be required.

Data would be collected from computer simulations and GW's existing DES. This data is largely already available to GW. During the project, GW would assess where there are data gaps in the DES. At these locations, additional

sensors would be deployed to measure relevant variables (e.g. energy generation, steam/air/water pressure, temperature). Sensors would be deployed at 9 different buildings throughout the GW campus. Sensors would be passive in nature (i.e. sensors would only collect data) and would be installed onto existing equipment, either indoors or outdoors, depending on the data collection requirements. The sensor devices would be removed upon completion of the project. No facility modifications would be carried out for sensor installations. Likewise, no ground disturbing activities or changes to the use, mission, or operation of existing facilities would be required. No additional permits, licenses, or authorizations would be required.

Data from the National Register of Historic Places indicates that there are several historical districts and historical properties present at GW's campus. The installation work associated with this project includes no facilities modifications and consists solely of the deployment of small, passive devices onto existing equipment, which would be removed upon completion of the project. Based on this, DOE has determined that there would be no potential to cause effects to historic properties, assuming they were present, therefore DOE has no further obligations under Section 106 of the National Historic Preservation Act.

As part of the project, the research team would also conduct an analysis of energy storage siting needs and specifications to make recommendations to GW's Facilities Planning, Construction, and Management Office for potential future acquisitions of storage technologies. However, no purchases or installations would necessarily result from these recommendations.

Laboratory testing would involve the establishment of electrical connections between hardware. Installation of sensor devices may involve fitting devices onto existing equipment on walls and rooftops. Potential risks associated with the completion of these work activities would be mitigated through personnel training, the use of personal protective equipment, monitoring, and engineering controls. GW would observe all applicable Federal and District health, safety, and environmental regulations.

NEPA PROVISION

DOE has made a final NEPA determination.

Notes:

Advanced Manufacturing Office

This NEPA determination does not require a tailored NEPA Provision.

NEPA review completed by Jonathan Hartman, 04/21/2020

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.

The proposed action is categorically excluded from further NEPA review.

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature: _____



Casey Strickland

NEPA Compliance Officer

Date: 4/21/2020

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: _____