

PMC-ND
(1.08.09.13)

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

**RECIPIENT:** Siemens Corporation, Corporate Technology**STATE:** NJ**PROJECT TITLE:** AURORA: AUtonomous and Resilient Operation of energy systems with RenewAbles

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0001987	DE-EE0008769	GFO-0008769-001	

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 Siemens Corporation to develop, validate, and demonstrate a novel three-layer Energy Management System (EMS) (e.g. the AUtonomous and Resilient Operation of Energy systems with RenewAbles (AURORA)). The AURORA EMS would incorporate Security Situational Awareness (SSA), Distributed Microgrid Coordination (DMC), and Autonomous Microgrid Restoration (AMR) functions.

The project would be completed over three Budget Periods (BPs), with a Go/No-Go Decision Point in between each BP. All proposed task work would be performed throughout all three BPs, with work in BPs 2 and 3 building on the work carried out in the previous BP(s). Work activities would focus on the development of the SSA, DMC, and AMR software platforms that would then be integrated to form the EMS. Specific tasks would include the definition of requirements/use cases, algorithm development/verification, system architecture design, and EMS validation testing via microinverter testbeds. Field data would also be collected from residential and utility-scale photovoltaic (PV) systems.

Siemens would oversee all project activities and would lead development of the software and controller platforms. Columbia University would support the project through algorithm design. Demonstration activities would be performed both at the National Renewable Energy Laboratory (NREL) in Golden, CO and at research facilities operated by Siemens in Princeton, NJ. Both locations are existing, purpose-built laboratory facilities that regularly perform work similar in nature to that included in this project. Existing testbeds would be used for all EMS demonstration activities. Some minor modifications would be made to the test bed at NREL in order to incorporate the components and controllers that make up the EMS. No physical modifications to existing facilities, ground disturbing activities, or changes to the use, mission, or operation of existing facilities would be required for completion of project activities.

Holy Cross Energy (HCE) would provide data to inform real-world requirements and use cases based on their

operational experience, as well as field data for development of the EMS. Field data would be collected using fisheye cameras and pyranometers installed on existing residential and utility-scale PV systems that form part of HCE's distribution network in Glenwood Springs, CO. These devices would be pointed toward the zenith and used to monitor sky conditions in order gather solar irradiation/occlusion data. Siemens would coordinate with HCE to ensure that installation of the monitoring devices on residences is in compliance with any disclosure agreements maintained by HCE with its customers.

Siemens and its project partners would adhere to established institutional health and safety policy when performing all laboratory demonstration activities. Likewise, established health and safety policies and procedures would be followed by HCE when performing installation activities along its distribution network. Siemens and its project partners would observe all applicable Federal, state, and local health, safety, and environmental regulations when performing project activities.

NEPA PROVISION

DOE has made a final NEPA determination.

Include the following condition in the financial assistance agreement:

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.

Notes:

Solar Energy Technologies Office

This NEPA determination does not require a tailored NEPA Provision. Include the standard DOE laboratory language in the award.

NEPA review completed by Jonathan Hartman, 06/25/2019

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: 7/1/2019

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: _____