

PMC-ND

(1.08.09.13)

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

**RECIPIENT:** Iowa State University**STATE:** IA

PROJECT TITLE: Fiscal Year (FY) 2019 Wind Energy Technologies Office Funding Opportunity Announcement

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0002071	DE-EE0008956	GFO-0008956-001	

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.)

Rationale for determination:

The U.S. Department of Energy (DOE) is proposing to provide funding to Iowa State University (Iowa) to develop optimization methods, models, and algorithms that enable rural utilities to leverage distributed wind in coordination with battery storage and other distributed energy resources (DERs) to shave peak demand, provide emergency power and regulate voltage/frequency.

The proposed project is divided into two Budget Periods (BP). Work in BP 1 is limited to intellectual research and data analysis. Work in BP 2 would include field work. The proposed site for field work has not yet been determined. As such, BP2 cannot be meaningfully evaluated at this time and is restricted until further information, including location of field work, is provided. This NEPA review is for BP 1 work only.

IN BP 1 Iowa would develop methods and models to coordinate distributed wind, synergistic solar, and battery storage for peak shaving and voltage regulation in rural grids, considering all operational constraints and battery degradation. These would include:

- Chance Constrained Optimization Methods
- Convex Approximation Methods
- Distributed Wind and Battery Storage Coordination Models
- Optimal Black-Start Service Provision Methods
- Decentralized Frequency-Voltage Control Methods
- Mathematical Guarantees of Performance
- Restoration Framework Integration Models
- Power Flow Solvability Conditions Methods
- Fast Power Flow Methods
- Mitigation Guidelines Methods

The results of this academic work will be a series of research papers documenting the efforts. Iowa would then test and validate the methods and algorithms via software simulations using preexisting utility data.

In addition, Iowa would develop plans for field testing, including site identification and test planning.

All work in BP 1 would be limited to information gathering, data analysis, and dissemination. Work would be completed at offices of Iowa State University in Ames, Iowa as well as by Wind Utility Consulting PC, in Jamaica, Iowa.

NEPA PROVISION

DOE has made a conditional NEPA determination.

The NEPA Determination applies to the following Topic Areas, Budget Periods, and/or tasks:

Budget Period 1

The NEPA Determination does not apply to the following Topic Area, Budget Periods, and/or tasks:

Budget Period 2

Notes:

[Wind Energy Technologies Office](#)

[This NEPA determination does require a tailored NEPA provision.](#)

[Review completed by Roak Parker, April 2, 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.

A portion of the proposed action is categorically excluded from further NEPA review. The NEPA Provision identifies Topic Areas, Budget Periods, tasks, and/or subtasks that are subject to additional NEPA review.

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature: _____

 Electronically Signed By: **Roak Parker**

NEPA Compliance Officer

Date: 4/2/2020

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: _____