U.S. Department of Energy
Categorical Exclusion Determination Form

Submit by E-mail

Proposed Action Title: (0473-1597) Smart Wire Grid, Inc. - Distributed Power Flow Control Using Smart Wires for Energy Routing

Program or Field Office: Advanced Research Projects Agency - Energy

Location(s) (City/County/State): California, Missouri, North Carolina, Georgia, Washington, Pennsylvania, and Tennessee

Proposed Action Description:
Funding will support development of a Smart Wire System Controller and an energy router software to enable distributed agents to coordinate with the control center, improve power flow control, and take advantage of unused capacity within the existing transmission system. In addition, the power controller will enable grid operators to optimize transmission assets to fully integrate variable renewable energy sources.

Proposed work consists of (1) designing, developing, testing, and optimizing the Smart Wire System Controller to meet utility specifications; (2) designing, developing, and testing a virtual large-scale Distributed Series Reactance (DNR) Array Test Bed to test the Smart Wire System Controller using real utility data; (3) designing, developing, and testing the system architecture for the energy router software; and (4) installing the large-scale DNR Array Test Bed, Smart Wire System Controller, and energy router software at the Tennessee Valley Authority's facilities to conduct field testing, baseline modeling, and analysis of actual system flow information in a simulated environment. Project work will take place at Smart Wire Grid, Inc. (Oakland, CA), Innoventor, Inc. (Earth City, MO), New Potato Technologies, Inc. (Wilmington, NC), National Electric Testing Research and Applications Center at Georgia Tech (Forest Park, GA), The Boeing Company (Mountain Home, CA; Saint Louis, MO; and Seattle, WA), Carnegie Mellon University (Pittsburgh, PA and Moffett Field, CA), and Tennessee Valley Authority (Chattanooga, TN).

Categorical Exclusion(s) Applied:

A9 - Information gathering, analysis, and dissemination

B1.7 - Electronic equipment

B3.6 - Small-scale research and development, laboratory operations, and pilot projects

For the complete DOE National Environmental Policy Act regulations regarding categorical exclusions, including the full text of each categorical exclusion, see Subpart D of 10 CFR Part 1021.

Regulatory Requirements in 10 CFR 1021.410(b): (See full text in regulation)

☑ The proposal 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 proposal that may affect the significance of the environmental effects of the proposal.

☑ The proposal 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.

Based on my review of the proposed action, as NEPA Compliance Officer (as authorized under DOE Order 451.1B), I have determined that the proposed action fits within the specified class(es) of action, the other regulatory requirements set forth above are met, and the proposed action is hereby categorically excluded from further NEPA review.

NEPA Compliance Officer: [signature] Date Determined: 02/17/2012