U.S. Department of Energy
Categorical Exclusion Determination Form

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Proposed Action Title: (0473-1529) Charles River Associates International Inc. - Transmission Topology Control for Infrastructure Resilience to the Integration of Renewable Generation

Program or Field Office: Advanced Research Projects Agency - Energy

Location(s) (City/County/State): Massachusetts, Pennsylvania, Washington

Proposed Action Description:
Funding will support development of Topology Control, an algorithmic and software technology framework that will improve the efficiency of the electrical grid by implementing appropriate short-term changes of transmission line status to manage transmission congestion and uncertainties associated with integration of renewable generation sources into the electricity grid.

Proposed work consists of (1) developing and validating a large power system model that accurately simulates day-ahead and intra-day power systems operations, (2) developing algorithms and software for application of tractable Topology Control, (3) identifying and evaluating critical stability and voltage constraints on operational use of Topology Control, and (4) assessing the benefits of Topology Control in a real-world operational environment by using a simulation model that closely replicates a large power system. Project work will take place at Charles River Associates Int'l Inc. (Boston, MA), Boston University (Boston, MA), Northeastern University (Boston, MA), Tufts University (Medford, MA), Polaris Systems Optimization Inc. (Shoreline, WA), Paragon Decision Technology Inc. (Bellvue, WA), and PJM Interconnection LLC (Norristown, PA).

Categorical Exclusion(s) Applied:
A9 - Information gathering, analysis, and dissemination

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: Matthew Dunne

Date Determined: 11/15/2011