



U.S. Department of Energy

Categorical Exclusion Determination Form

Submit by E-mail

Proposed Action Title: (0471-1606) United Technologies Research Center - Thermal Storage Using Hybrid Vapor Compression Adsorption System

Program or Field Office: Advanced Research Projects Agency - Energy

Location(s) (City/County/State): Connecticut, Michigan

Proposed Action Description:

Funding will support development of an advanced climate control system for plug-in hybrid electric vehicles (PHEVs) and electric vehicles (EVs) utilizing a hybrid thermal battery that employs a unique approach of adsorbing refrigerant on a metal salt.

Proposed work consists of indoor laboratory-based research and development and office-based engineering analysis, including (1) synthesis, characterization, and testing of metal salts and refrigerant fluids for use in the thermal battery system, (2) computer-based design and performance modeling of the integrated thermal battery system and component parts, (3) fabrication, testing, and optimization of component parts and an integrated small-scale, prototype thermal battery system, (4) conceptual system design and techno-economic evaluation of the thermal battery technology for integration into PHEV and EV climate control systems, and (5) risk and safety analysis of the thermal battery system. Project work will take place at dedicated laboratory and office facilities located at United Technologies Research Center (East Hartford, CT) and Ricardo Inc. (Van Buren Township, MI).

Categorical Exclusion(s) Applied:

A9 - Information gathering, analysis, and dissemination

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:

Date Determined: 11/29/2011