



U.S. Department of Energy Categorical Exclusion Determination Form

Submit by E-mail

Proposed Action Title: Infinia Technology Corporation - FREE-Piston Zero Emissions Refrigeration (FREEZER)

Program or Field Office: Advanced Research Projects Agency - Energy

Location(s) (City/County/State): Richland, WA; Stone Mountain, GA

Proposed Action Description:

Funding will support the project team's small-scale, research and development activities to develop a low temperature commercial refrigeration system (FREE-Piston Zero Emissions Refrigeration or FREEZER) featuring a piston Stirling cooler integrated with a CO2 heat transport loop. Specifically, the project team will: (1) design the laboratory-scale system; (2) develop a commercial-ready power supply for FREEZER; (3) complete field testing unit (FTU) designs to include all new manufacturing drawings and specifications required for component procurement; (4) conduct testing of FTUs at existing Heatcraft facilities and customer sites and analyze test data analysis. If successful, the refrigeration system could significantly reduce energy demand from buildings and reduce GHG emissions by utilizing relatively benign CO2 instead of traditional synthetic refrigerants. All field testing will be conducted by installing FREEZER FTUs alongside traditional cooling solutions at existing customer locations. No modifications will be made to existing facilities to accommodate the proposed work.

Project activities will be conducted at existing facilities that are designed for the applicable activities at Infinia Technology Corporation (Richland, WA) and Heatcraft Refrigeration Products LLC (Stone Mountain, GA). Project tasks will be conducted in accordance with with established safety and materials/waste management protocols and pursuant to applicable Federal, State, and local regulatory requirements.

Categorical Exclusion(s) Applied:

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: 05/31/2016

(This form will be locked for editing upon signature)



U.S. Department of Energy

Categorical Exclusion Determination Form

Program or Field Office: Advanced Research Projects Agency - Energy

Project Title: (0289-1632) Infinia - Stirling Air Conditioner (StAC) for Compact Cooling

Location: Washington

Proposed Action or Project Description:

American Recovery and Reinvestment Act:

Funding will support laboratory-scale research and development on a Stirling Air Conditioner that combines a Stirling Cycle with innovative heat transfer coupling to produce improvements in compact cooling. The proposed work is consistent with the goal of BEETIT: the development of energy efficient cooling technologies and air conditioners for buildings, to save energy and reduce GHG emissions.

Proposed work consists entirely of RD&D work to be completed at Infinia's commercially-zoned headquarters facility in Kennewick, WA. The work performed will be limited to in-lab activities, including engineering design; small scale machining; and component integration, testing, fabrication, and analysis.

Categorical Exclusion(s) Applied:

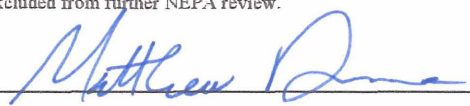
X - B3.6 Siting/construction/operation/decommissioning of facilities for bench-scale research, conventional laboratory operations, small-scale research and development and pilot projects

*-For the complete DOE National Environmental Policy Act regulations regarding categorical exclusions, see Subpart D of 10 CFR10 21 [Click Here](#)

This action would not: threaten a violation of applicable statutory, regulatory, or permit requirements for environment, safety, and health, including DOE and or Executive Orders; require siting, construction, or major expansion of waste storage, disposal, recovery, or treatment facilities, but may include such categorically excluded facilities; disturb hazardous substances, pollutants, contaminants, or CERCLA-excluded petroleum and natural gas products that pre-exist in the environment such that there would be uncontrolled or unpermitted releases; or adversely affect environmentally sensitive resources (including but not limited to those listed in paragraph B.(4)) of Appendix B to Subpart D of 10 CFR 1021). Furthermore, there are no extraordinary circumstances related to this action that may affect the significance of the environmental effects of the action; this action is not "connected" to other actions with potentially significant impacts, is not related to other proposed actions with cumulatively significant impacts, and is not precluded by 40 CFR 1506.1 or 10 CFR 1021.211.

Based on my review of information conveyed to me and in my possession (or attached) concerning 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: Aug 5, 2010

Comments:

Webmaster: