



# U.S. Department of Energy Categorical Exclusion Determination Form



Program or Field Office: Office of Energy Efficiency and Renewable Energy:  
Phase III Xlerator Program

Funding Opportunity Number DE-FOA-0000397

Applicant Name: Infinia Corporation

Location: Kennewick, WA

Project Title Innovative Multi-Cylinder Cryocooler (MCC) For Low-Cost  
Mass Production

Proposed Action or Project Description American Recovery and Reinvestment Act: ☐

High Temperature Superconductor (HTS) cryocooling is costly and maintenance prone. Recent investments have developed HTS technology and markets, but little progress has been made in the critical enabling cryocooler technology. Infinia Corporation's innovative Multi-Cylinder Cryocooler (MCC) addresses commercial needs in a cost-effective manner and to a significantly higher degree than any existing alternative due to a unique integration of Infinia's proven long-life, high-reliability, maintenance-free flexure bearing and clearance seal technology with a patented high capacity, double-acting free-piston Stirling cycle configuration. Infinia, during Phase I and II, designed, modeled, fabricated, assembled, and preliminary tested the first MCC system. A variation of product package alternatives were designed and testing met expectations with evidence that the final product will produce the design level of 1 kW of heat lift at 65 K with a standard 3-phase AC power input of 11.1 kW. During Phase III, Infinia proposes to address commercial needs in a very cost-effective manner. Phase III would produce refined second and third generation MCC units that would culminate in a real world field demonstration at an HTS installation such as a transmission line. The proposed work plan is staged as 3 separate incremental advances of 1 year each.

Conditions: None

Categorical Exclusion(s) Applied: B3.6, B5.1

\*-For the complete DOE National Environmental Policy Act regulations regarding categorical exclusions, see Subpart D of 10 CFR 10 21

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.

ORO NEPA Compliance Officer

**James L. Elmore**

Date Determined:

9/17/2010