



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: Clever Fellows Innovation Consortium, Inc

Location: Troy, NY

Project Title Reliable, Practical Kilowatt-Class Cryogenics for
Superconducting Devices

Proposed Action or Project Description American Recovery and Reinvestment Act:

Newly developed high-temperature superconductivity (HTS)-scale Flexibly-Attached Remote (FAR) acoustic coolers require cost reduction, minor design updates to better match changed superconductor cooling targets, and user familiarization to move from laboratory proof in prototypes to acceptance and commercial implementation in their intended HTS cooling uses. In Phase 1, Clever Fellows Innovation Consortium, Inc., (CFIC) completed mechanical design of FAR coldheads for HTS, then modeled and evaluated performance, production cost, and reliability of associated coolers. CFIC found that this cooler type can approach the cost goal, with the reliability, capacity, and efficiency required for HTS power systems commercialization. In Phase II, CFIC built and tested coolers designed in Phase I, sized for expected loads in HTS transformers and transmission lines (extending the scale of FAR technology by almost 100X to HTS-relevant capacities). CFIC submitted one machine to long-term testing at SuperPower to demonstrate this cryogenics system for HTS power systems. During Phase III, CFIC proposes to reduce unit cost by approximately 50%, to below parity with conventional coolers with similar capacity (but much lower reliability and efficiency). CFIC further proposes to improve capacity below 77K, by up to 20% at 50K, and to complete a pre-production system of 1kW nominal capacity and demonstrate it in field trials by an HTS device maker.

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