



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: Electron Energy Corporation

Location: Landisville, PA

Project Title High Performance Permanent Magnets for Advanced
Motors

Proposed Action or Project Description American Recovery and Reinvestment Act:

The overall objective of this program is to develop high performance permanent magnets with improved magnetic properties at temperatures up to 240°C, high electrical resistivity to reduce eddy current losses in advanced motor applications, and low cost. In the phase I and Phase II effort, Electron Energy Corporation (EEC) prepared samples in the lab with high resistivity and high magnetic performance. The approaches comprised of compositional and process optimization, such as atomic substitutions and additions in conjunction with process parameter optimization to yield the highest magnetic properties, and the use of dielectric constituents to increase the electrical resistivity. The research was extended to both Sm-Co and Nd-Fe-B rare earth permanent magnets. For Phase III, EEC proposes to dedicate further optimization of the identified feasible approaches, development of standard grades of high resistivity magnets, pilot production and beta site testing. Cost reduction will be addressed by further development of automated production processes. Moreover, the dielectric constituents of the new composite/hybrid magnets, as well as the simple fabrication process, will also contribute to achieving the goal of more affordable high-performance magnets. Phase III effort would be focused on exploring opportunities to commercialize the high resistivity and high performance magnets developed in this program. Beta site testing will provide much needed data to show the reduction of eddy current and increase of motor efficiency. If this program is successfully completed, it will have significant impact on hybrid vehicle markets as well as wind energy industries. It will also re-vitalize the U.S. manufacturing base in permanent magnets, which is currently dominated by China and Japan.

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:

9/14/2010