



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: TDA Research, Inc

Location: Wheat Ridge, CO

Project Title Bio-Fueled SOFC Program: Energy Efficiency and
Renewable Energy

Proposed Action or Project Description American Recovery and Reinvestment Act:

TDA Research, Inc. (TDA), proposes to develop an enabling technology for highly efficient biofueled power and heat generation. The conversion of an abundant renewable waste product to power will reduce U.S. dependence on fossil fuels and also reduces the greenhouse gas emissions. The energy from bio-waste approaches 1.46 quadrillion Btu, and only a small amount of this energy is currently utilized. The use of this domestic renewable source will reduce U.S. dependence on fossil fuels and also reduces the greenhouse gas emissions. During Phase I and II, TDA developed a low-cost, high-capacity sorbent that can remove sulfur-bearing odorants from natural gas and liquefied petroleum gas (LPG) and demonstrated the performance of its desulfurization sorbent first in bench-scale and then in the field integrated with fuel cell systems (with fuel cell stacks, fuel processor, and all auxiliary items). TDA commercialized the technology and supplied multi-ton quantities to various fuel cell generators operating around the world on natural gas and LPG. In the Phase III research, TDA proposes to demonstrate the potential of its sorbent in cleaning-up of the biogas integrated with a 10 kWe SOFC generator. Working with a leading SOFC supplier, a waste water treatment facility and a food processing plant, proposes to show the operation of a 1-kWe SOFC generator on two different types of biogases that contain a wide range of contaminants. Based on the field trial results, TDA proposes to carry out a detailed engineering analysis to assess the impact of its sorbent on the efficiency, size, and cost of the overall fuel cell system so that the benefits of its cleanup system will be clearly documented. The Phase III results will show the technical and economic feasibility of the new desulfurization technology.

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