



U.S. Department of Energy

Categorical Exclusion Determination Form



Program or Field Office: Advanced Research Projects Agency - Energy (ARPA-E)

Project Title: 25A2942 - Adaptive Turbine Blades: Blown Wing Technology for Low-Cost Wind Power

Location: * - Multiple States - California, Georgia

Proposed Action or Project Description:

American Recovery and Reinvestment Act:

The United States will not achieve its goal of 20% Wind Energy by 2030 without a radical breakthrough in wind turbine technology that cuts the cost of manufacture and greatly expands the capacity to generate wind power in marginal areas. Circulation control technology or "Blown Wing" technology creates a virtual airfoil by jetting compressed air out of orifices along a wing and has the potential to introduce a radical simplification to the manufacture and operation of wind turbines. Unlike a fixed airfoil, a "blown wing" can be dynamically adjusted to maximize power under a wide range of wind conditions. And, unlike fixed airfoils which must be laboriously manufactured to high precision, an effective blown wing can be generated from a slotted extruded pipe that can be domestically manufactured at a fraction of the cost. Blown wing technology has been demonstrated on fixed and rotary wing aircraft by the DOD but no demonstration of blown wing technology has been attempted for wind turbines. We propose a 24-month program to analyze, engineer and prototype a blown wing wind turbine at the 100 kW scale. If we are successful, we could introduce a radically simplified turbine system to the marketplace, enabling the economic proliferation of distributed, medium-scale wind turbine technology in lower class wind sites throughout the United States

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: /s/ William J. Bierbower

Digitally signed by William J. Bierbower
 DN: cn=William J. Bierbower, o, ou,
 email=william.bierbower@hq.doe.gov, c=US
 Date: 2010.01.14 12:18:26 -05'00'

Date Determined: 01/14/2010

Comments:

Webmaster:

