



# U.S. Department of Energy

## Categorical Exclusion Determination Form

**Program or Field Office:** Advanced Research Projects Agency – Energy

**Project Title:** Makani Power, Inc. - Advanced Wind Turbine (AWT)

**Location:** California Alameda, CA; Davenport, CA; Sherman Island, CA

**Proposed Action or Project Description:**

American Recovery and Reinvestment Act:

Funding will support research, design, and a pilot-scale project involving the operability of a prototype Airborne Wind Turbine (AWT), an airborne system intended to generate utility-scale electricity by using tethered, high-performance wings outfitted with turbines.

Proposed work consists entirely of RD&D work to be completed in manufacturing and outdoor testing facilities located in Alameda, CA; Davenport, CA; and Sherman Island, CA. The work performed will be limited to on-site research, design, fabrication, and pilot-scale testing.

**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 CFR 1021 [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:

Date Determined: Aug 14, 2010

Comments:

Webmaster:



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

Submit by E-mail

Proposed Action Title: Makani Power, Inc. - Advanced Wind Turbine (AWT)

Program or Field Office: Advanced Research Projects Agency - Energy

Location(s) (City/County/State): Alameda, CA; Sherman Island, CA

Proposed Action Description:

Funding will support development, optimization, testing, and integration of component technologies for Wing 7, a 20 kW prototype Airborne Wind Turbine (AWT), as well structural design of the M600, a next-generation 600 kW AWT system.

Proposed work will consist of (1) mechanical design and development of a ground station, (2) optimization and testing of tether termination, (3) optimization and testing of perch design, (4) development of a lightweight, vertical-axis winch, (5) electrical integration and testing of standby power and supervisory control systems, (6) development and testing of a high-voltage bidirectional power converter, (7) optimization and testing of a prototype carbon fiber tether, (8) optimization and testing of a ballistic parachute system, (9) optimization of motor pylon design, (10) optimization and testing of the wing-mounted rotors, (11) execution of flight simulation to test structural design, (12) short-term and long-term endurance testing through autonomous flight demonstrations, and (13) structural modeling and design of the M600 AWT.

Makani will perform research and development activities pertaining to the Wing 7 and M600 in dedicated fabrication and testing facilities at its corporate headquarters in Alameda, CA. Makani will also perform outdoor flight testing of the Wing 7 at an established airfield adjacent to its headquarters facility in Alameda, CA, as well as at an established test site in Sherman Island, CA. All work will be limited to small-scale and pilot-scale research, design, fabrication and testing activities.

Categorical Exclusion(s) Applied:

B3.6 - Small-scale research and development, laboratory operations, and pilot projects

B5.15 - Small-scale renewable energy research and development and pilot projects

For the complete DOE National Environmental Policy Act regulations regarding categorical exclusions, including the full text of each categorical exclusion, see Subpart D of 10 CFR Part 1021.

Regulatory Requirements in 10 CFR 1021.410(b): (See full text in regulation)

The proposal fits within a class of actions that is listed in Appendix A or B to 10 CFR Part 1021, Subpart D.

To fit within the classes of actions listed in 10 CFR Part 1021, Subpart D, Appendix B, a proposal must be one that would not: (1) threaten a violation of applicable statutory, regulatory, or permit requirements for environment, safety, and health, or similar requirements of DOE or Executive Orders; (2) require siting and construction or major expansion of waste storage, disposal, recovery, or treatment facilities (including incinerators), but the proposal may include categorically excluded waste storage, disposal, recovery, or treatment actions or facilities; (3) disturb hazardous substances, pollutants, contaminants, or CERCLA-excluded petroleum and natural gas products that preexist in the environment such that there would be uncontrolled or unpermitted releases; (4) have the potential to cause significant impacts on environmentally sensitive resources, including, but not limited to, those listed in paragraph B(4) of 10 CFR Part 1021, Subpart D, Appendix B; (5) involve genetically engineered organisms, synthetic biology, governmentally designated noxious weeds, or invasive species, unless the proposed activity would be contained or confined in a manner designed and operated to prevent unauthorized release into the environment and conducted in accordance with applicable requirements, such as those listed in paragraph B(5) of 10 CFR Part 1021, Subpart D, Appendix B.

There are no extraordinary circumstances related to the proposal that may affect the significance of the environmental effects of the proposal.

The proposal has not been segmented to meet the definition of a categorical exclusion. This proposal is not connected to other actions with potentially significant impacts (40 CFR 1508.25(a)(1)), is not related to other actions with individually insignificant but cumulatively significant impacts (40 CFR 1508.27(b)(7)), and is not precluded by 40 CFR 1506.1 or 10 CFR 1021.211 concerning limitations on actions during preparation of an environmental impact statement.

Based on my review of 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: 

Date Determined: 02/21/2012