U.S. Department of Energy
Categorical Exclusion Determination Form

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Proposed Action Title: Aerodynamic Turbines, Lighter and Afloat, with Nautical Technologies and Integrated Servo-control (ATLANTIS) Program (FOA No. DE-FOA-0002051)

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

Location(s) (City/County/State): AL; CA; CO; IL; MA; MD; ME; MI; NJ; NM; NY; RI; TX; UT; VA; WA

Proposed Action Description:

The ATLANTIS Program seeks to fund the development of novel technologies for floating, offshore wind turbines (FOWTs) using the principles of control co-design (CCD). The FOWT designs in these ATLANTIS projects will apply new designs that eliminate the need for such large platform structures, developing CCD technologies that substitute platform mass for integrated feedback control systems and maximized rotor area to maintain and increase the stability of the turbines themselves, without the need for a large platform design. If successful, the projects could enable access to under utilized wind resources, enabling greater production and market share access in offshore wind energy.
The ATLANTIS Program is composed of 13 small-scale research and development projects that will be conducted by universities, non-profit entities, for-profit entities, and federal laboratories. This Determination covers 12 of the 13 projects (listed in Attachment A). All 12 projects fit within the class of actions identified under the DOE Categorical Exclusion identified below and do not involve any extraordinary circumstances that may affect the significance of the environmental effects of the projects. This assessment was based on a review of the proposed scope of work and the potential environmental impacts of each project. All project tasks will be conducted in accordance with established safety and materials/waste management protocols and pursuant to applicable Federal, State, and Local regulatory requirements. Recipients for 2 of the 12 ATLANTIS projects have not obtained all necessary permits and approvals applicable to proposed actions in accordance with local, state, and federal requirements. These 2 Prime Recipients, under the terms of their cooperative agreements, are prohibited from commencing applicable project work before (1) obtaining the necessary permits and approvals and (2) providing written assurances to ARPA-E of the same.

Categorical Exclusion(s) Applied:

A9 - Information gathering, analysis, and dissemination

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

B5.25 - Small-scale renewable energy research and development and pilot projects in aquatic environments

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: [signature] Date Determined: 01/10/2020

(This form will be locked for editing upon signature)

Attachment A: Projects in the ATLANTIS (FOA No. DE-FOA-0002051) Program

Prime Recipient (Control No.)	Project Title	Categorical Exclusion
General Electric Co. (2051-1502)	Control, Co-design, and Co-optimization of a Lightweight 12 MW Wind Turbine on an Actuated Tension Leg Platform	A9
National Renewable Energy Laboratory (2051-1524)	The FOCAL Experimental Program: Floating Offshore-wind and Controls Advanced Laboratory Experiment Generating a Dataset to Accelerate Innovation in FOWT Design and Controls	A9
National Renewable Energy Laboratory (2051-1522)	Wind Energy with Integrated Servo-control (WEIS): A Tool Set to Enable Controls Co-Design of Floating Offshore Wind Energy Systems	A9
National Renewable Energy Laboratory (2051-1521)	USFLOWT: Ultraflexible Smart FLoating Offshore Wind Turbine	A9
Rutgers University (2051-1539)	Computationally Efficient Atmospheric-Data-Driven Control Co-Design Optimization Framework with Mixed-Fidelity Fluid and Structure Analysis	A9
Sandia National Laboratories (2051-1501)	ARCUS Vertical-Axis Wind Turbine	A9; B3.6
WS Atkins, Inc. (2051-1532)	Scale Model Experiments for Co-Designed FOWTs Supporting a High-Capacity (15-MW) Turbine	A9; B3.6; B5.25
University of Maine (2051-1556)	Ultra-light Concrete Floating Offshore Wind Turbine with NASA-developed Response Mitigation Technology	A9; B3.6
University of Texas-Dallas (2051-1516)	A Low-Cost Floating Offshore Vertical Axis Wind System	A9
University of Massachusetts-Amherst (2051-1518)	A Co-Simulation Platform for Off-Shore Wind Turbine Simulations	A9
Otherlab (2051-1527) *	AIKIDO :Advanced Inertial and Kinetic energy recovery through Intelligent (co)-Design Optimization.	A9; B3.6
Principle Power, Inc. (2051-1510) *	DIGIFLOAT: Development, Experimental Validation and Operation of a DIGItal Twin Model for Full-scale FLOATing Wind Turbines	A9; B3.6; B5.25