



U.S. Department of Energy

Categorical Exclusion Determination Form

Submit by E-mail

Proposed Action Title: Brown University - Marine Hydro-Kinetic Energy Harvesting Using Cyber-Physical Systems

Program or Field Office: Advanced Research Projects Agency - Energy

Location(s) (City/County/State): Somerset, MA

Proposed Action Description:

FOURTH AMENDED DETERMINATION (Previous Determinations may be made available upon request)

The project team intends to conduct hydrokinetic tidal testing of the project team's turbine off of a Massachusetts Maritime Academy pier in Taunton River near Somerset, MA for five days in October 2016 as part of the third phase of testing. In the case of inclement weather or equipment failure, the above testing may be conducted between October 2016 through the end of May 2017. This round of tow-testing will add two outboard motors to the existing barge for additional propulsion. The 2kW hydrofoil unit (same device used in July 2016 testing) will be mounted on the barge, which will be driven at up to 5 knots to simulate the environment of fast flowing tidal water. The project team confirmed that it consulted with all applicable local, state, and federal regulators and organizations and found that no permits are needed to perform testing. The project team received a revised approval letter from the Somerset Conservation Commission. No significant modifications will be made to existing facilities or structures to accommodate the proposed work.

Categorical Exclusion(s) Applied:

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:


(This form will be locked for editing upon signature)

Date Determined: 10/12/2016



U.S. Department of Energy Categorical Exclusion Determination Form

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Proposed Action Title: Brown University - Marine Hydro-Kinetic Energy Harvesting Using Cyber-Physical Systems

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

Location(s) (City/County/State): Providence, RI; Wellesley, MA; Cambridge, MA; Portsmouth, RI

Proposed Action Description:

SECOND AMENDED DETERMINATION (See attached for the First Amended Determination)

The First Amended Determination (Dated January 16, 2015) followed Brown University's receipt of a Letter of Authorization from Rhode Island's Coastal Resources Management Council that allows BluSource Energy, Inc. to conduct field testing in the Sakonnet River of Rhode Island. No field testing occurred following issuance of the First Amended Determination.

This second amended determination follows Brown University's receipt of an amended Letter of Authorization (attached) from Rhode Island's Coastal Resources Management Council that allows Brown University and Blue Source Energy Inc. to conduct field testing in Mt. Hope Bay and the Sakonnet River, and a Letter of Authorization (attached) from the Somerset Conservation Commission that allows Brown University and Blue Source Energy Inc. to conduct field testing in the Sakonnet River, Mt. Hope Bay, and the Taunton River. In addition, Brown University received authorization from the Rhode Island Department of Environmental Management to conduct testing in the Sakonnet River of materials that will be used in the later field tests. The purpose of the materials testing is to assess the rates of biofouling community development on these materials. For any materials or field testing not covered by these authorizations, Brown University must obtain another amended NEPA determination from ARPA-E.

Categorical Exclusion(s) Applied:

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:

Date Determined: 06/25/2015

*William Brewster, by KAA
Superior*



U.S. Department of Energy Categorical Exclusion Determination Form

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Proposed Action Title: Brown University - Marine Hydro-Kinetic Energy Harvesting Using Cyber-Physical Systems

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

Location(s) (City/County/State): Providence, RI; Wellesley, MA; Cambridge, MA; Portsmouth, RI

Proposed Action Description:

AMENDED DETERMINATION

Brown University, in conjunction with Wellesley College, John A. Volpe National Transportation Systems Center (Volpe), and BluSource Energy, Inc. (BluSource), will conduct laboratory-based, small-scale research and development activities to develop a power conversion device that will then be tested in coastal waters in an effort to maximize power production and reduce costs with respect to capturing energy from flowing water in rivers and tidal basins.

Brown University and the Project Team will comply with applicable local, state, and federal regulations and incorporate appropriate control technologies and best management practices in all project activities. Brown University is required, under the terms of its ARPA-E Cooperative Agreement, to secure all necessary permits prior to initiating field testing and to provide ARPA-E with written assurances of acquiring such permits prior to field testing.

This amended determination follows Brown University's receipt of a Letter of Authorization (attached) from Rhode Island's Coastal Resources Management Council that allows BluSource Energy, Inc. to conduct field testing in the Sakonnet River of Rhode Island. For any field testing outside of the Sakonnet River, Brown University must obtain another amended NEPA determination from ARPA-E.

Categorical Exclusion(s) Applied:

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:

Date Determined: 01/16/2015



U.S. Department of Energy

Categorical Exclusion Determination Form

Submit by E-mail

Proposed Action Title: (0670-3338) Brown University - Marine Hydro-Kinetic Energy Harvesting Using Cyber-Physical Systems

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

Location(s) (City/County/State): Providence, RI

Proposed Action Description:

Funding will support efforts to develop a cyber-physical hydrofoil, an oscillating, underwater wing coupled with adaptive control software to capture energy from flowing water in rivers and tidal basins. Project tasks will be conducted in dedicated university laboratory, testing, and office facilities at Brown University in accordance with university materials/waste management protocols and pursuant to applicable Federal, State, and local regulatory requirements. No outdoor field testing will occur in this project.

Categorical Exclusion(s) Applied:

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

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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: 02/04/2013