U.S. Department of Energy
Categorical Exclusion Determination Form

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Proposed Action Title: MacroAlgae Research Inspiring Novel Energy Resources (MARINER) Program (FOA No. DE-FOA-0001726)

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

Location(s) (City/County/State): AK, AL, CA, CO, CT, DC, DE, FL, GA, HI, IL, LA, MA, MD, ME, MS, NC, NH, NM, NY, OR, PA, TX, WA,WI,VI

Proposed Action Description:

The MARINER Program seeks to fund the development of technologies to enable the United States to become a leading producer of macroalgae, or seaweed, for use as a biofuel to improve U.S. energy security and economic competitiveness. The MARINER Program is composed of 18 small-scale research and development projects that will be conducted by universities, non-profit entities, for-profit entities, and federal laboratories. All 18 of the MARINER projects (listed in Attachment A) are covered by this Determination and fit within the class of actions identified under the DOE Categorical Exclusions 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. Project tasks for these 18 projects under the MARINER Program will be conducted in accordance with established safety and materials/waste management protocols and pursuant to applicable Federal, State, and Local regulatory requirements. If successful, MARINER technologies could help the US produce at least 500 million dry metric tons of macroalgae per year. Such volumes could yield 2.7 quadrillion BTUs of energy in the form of liquid fuel, 10% of the nation's annual transportation energy demand. Prime Recipients for 6 of the 18 MARINER projects have not obtained all necessary permits and approvals applicable to proposed actions in accordance with local, state, and federal requirements. All 6 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

B3.11 - Outdoor tests and experiments on materials and equipment components

B3.16 - Research activities in aquatic environments

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: 01/19/2018

(This form will be locked for editing upon signature)

Attachment A: Projects in the MARINER Program (FOA No. DE-FOA-0001726)

Prime Recipient	Project Title	Categorical Exclusion
Catalina Sea Ranch, LLC (1726-1546)	Design of Large Scale Macroalgae Systems (MacroSystems)	A9
C.A. Goudey & Associates (1726-1502)	Autonomous Tow Vessels for Offshore Macroalgae Farming	B3.6; B5.25
Kampachi Farms, LLC (1726-1540)	Blue Fields: Offshore Single Point Mooring Array for Efficient, High-Yield Macroalgal Production	A9; B3.6
Makai Ocean Engineering, Inc. (1726-1526)	Modified Environmental Fluid Dynamics Code (EFDC) for MacroAlgae Nutrient Flux Modeling	A9; B3.16
Marine Biological Laboratory (1726-1506)	The Development of Techniques for Tropical Seaweed Cultivation and Harvesting	A9
Pacific Northwest National Laboratory (1726-1512)	Development of the Ocean NOMAD (Nautical Off-shore Macroalgal Autonomous Device) for Low-Cost Production of Biomass for Foods, Feeds, and Fuels	A9; B3.11
Pacific Northwest National Laboratory (1726- 1522)	Development of Multi-Scale, Multi-Resolution Modeling Tools to Support Scalable Macroalgae Production in the Oceans	A9
Trophic, LLC (1726-1539)	Continuous High Yield Kelp Production	A9
University of Alaska – Fairbanks (1726-1504)	Development of Scalable Coastal and Offshore Macroalgal Farming	A9
University of California – Santa Barbara (1726-1535)	Scalable Aquaculture Monitoring System - SAMS	A9; B3.16; B5.25
University of California – Irvine (1726-1531)	MacroAlgal Cultivation MODeling System (MACMODS)	A9; B3.16; B5.25
University of Southern Mississippi (1726-1517)	AdjustaDepth - Adjustable Depth Growth System	A9

Attachment A: Projects in the MARINER Program (FOA No. DE-FOA-0001726)

Prime Recipient	Project Title	Categorical Exclusion
Fearless Fund (1726-1575)	Ocean Energy from Macroalgae	A9; B3.16; B5.25
University of New England (1726-1519)	A Validated Finite Element Modeling Tool for Hydrodynamic Loading and Structural Analysis of Ocean Deployed Macroalgae Farms	A9; B3.16; B5.25
University of Southern Mississippi (1726-1526)	SeaweedPaddock - Pelagic Sargassum Ranching	B5.25; B3.16
University of Wisconsin – Milwaukee (1726-1513)	Genome Wide Association Studies for Breeding *Macrocystis pyrifera*	A9; B3.16; B5.25
Woods Hole Oceanographic Institution (1726-1516)	Integrated Seaweed Hatchery and Selective Breeding Technologies for Scalable Offshore Seaweed Farming	A9; B3.16; B5.25
Woods Hole Oceanographic Institution (1726-1533)	Integrated Monitoring of Macroalgae Farms Using Acoustics and UUV Sensing	A9; B3.16; B5.25