PMC-ND

(1.08.09.13)

U.S. DEPARTMENT OF ENERGY
OFFICE OF ENERGY EFFICIENCY AND RENEWABLE ENERGY
NEPA DETERMINATION

RECIPIENT: University of California, San Diego, SIO **STATE:** CA

PROJECT TITLE : Ecological monitoring technologies to enhance large-scale microalgae cultivation, stability, and productivity

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0002423	DE-EE0009673	GFO-0009673-001	GO9673

Based on my review of the information concerning the proposed action, as NEPA Compliance Officer (authorized under DOE Policy 451.1), I have made the following determination:

CX, EA, EIS APPENDIX AND NUMBER:

Description:

A9 Information gathering, analysis, and dissemination	Information gathering (including, but not limited to, literature surveys, inventories, site visits, and audits), data analysis (including, but not limited to, computer modeling), document preparation (including, but not limited to, conceptual design, feasibility studies, and analytical energy supply and demand studies), and information dissemination (including, but not limited to, document publication and distribution, and classroom training and informational programs), but not including site characterization or environmental monitoring. (See also B3.1 of appendix B to this subpart.)
B3.6 Small-scale research and development, laboratory operations, and pilot projects	Siting, construction, modification, operation, and decommissioning of facilities for smallscale research and development projects; conventional laboratory operations (such as preparation of chemical standards and sample analysis); and small-scale pilot projects (generally less than 2 years) frequently conducted to verify a concept before demonstration actions, provided that construction or modification would be within or contiguous to a previously disturbed or developed area (where active utilities and currently used roads are readily accessible). Not included in this category are demonstration actions, meaning actions that are undertaken at a scale to show whether a technology would be viable on a larger scale and suitable for commercial deployment.
B5.15 Small-scale renewable energy research and development and pilot projects	Small-scale renewable energy research and development projects and small-scale pilot projects, provided that the projects are located within a previously disturbed or developed area. Covered actions would be in accordance with applicable requirements (such as local land use and zoning requirements) in the proposed project area and would incorporate appropriate control technologies and best management practices.

Rationale for determination:

The U.S. Department of Energy (DOE) is proposing to provide funding to the Scripps Institution of Oceanography (SIO) of the University of California San Diego (UCSD) to develop a toolkit and supporting processes which would allow users to monitor biochemical and ecological conditions of algae cultivation in real-time by leveraging existing nucleic acid sequencing technology.

Project activities would be performed in laboratory and controlled outdoor settings at secure purpose-built facilities. Activities would be restricted to laboratory settings until successful completion of prerequisite activities that establish a method to transfer technology and procedures to the outdoor project site.

Laboratory activities would include numerous biological laboratory procedures, including: algae cultivation, nucleic acid isolation, nucleic acid sequencing, sample analysis, and experiments at laboratory-scale which would involve the manipulation of environmental factors that influence algae growth and reproduction. Other activities in this setting would include the use of computers for data collection, data analysis, and development of the project toolkit. All laboratory activities would occur at dedicated lab facilities at SIO (La Jolla, CA) and/or Global Algae Innovations (GAI) Kauai Algae Lab (KAL) (Lihue, HI).

Outdoor activities would occur at GAI's Kauai Algae Facility (KAF) (Lihue, HI). These activities would include facility operations for algae cultivation, sample collection, and sample analysis. Algae cultivation would occur in pre-existing contained, artificial outdoor ponds designed for commercial-scale aquaculture which would involve the use of commercial fertilizers. Water from the Lihue ditch system (i.e runoff from Mount Waialeale) would be used for culture media and pond maintenance (not to exceed 10,000 gallons per day). Pond samples would be collected from the cultivation ponds for on-site analysis. Analyses would focus on sequencing nucleic acids from collected pond samples

to evaluate the biological factors affecting algae production. Information collected during analyses would contribute to the development of the project toolkit which would inform users how to maximize the production of algae.

Project activities would not require the construction of new facilities, ground disturbing activities, or changes to the use, mission, or operation of existing facilities. Cultivation activities would involve the handling and use of commercial agricultural fertilizers, which would be properly stored, handled, and consumed on-site during algae cultivation. Outdoor activities at KAF would pose the typical hazards of an outdoor aquaculture farm (e.g. powered machinery with moving parts, hand tools, trip hazards, fertilizers). Safety at KAF would be reviewed on a weekly basis during KAF personnel meetings. Project activities would involve the use and handling of laboratory equipment, hazardous chemicals, biological specimens, and aquaculture equipment and machinery. All hazardous waste generated during project activities would either be neutralized (e.g. autoclaved) on-site before disposal or transferred to contracted waste disposal specialists. University and corporate health and safety procedures would be followed, including: training of personnel, use of Personal Protective Equipment (PPE), use of engineering controls, and proper handling of hazardous materials and equipment. All federal, state, and local regulations concerning environmental health and safety would be followed during all project activities.

While it is not anticipated that algae strains would need to be exported to Hawaii from the mainland for this project, if export does occur all necessary permits would be obtained prior to transporting any organisms to Hawaii.

NEPA PROVISION

DOE has made a final NEPA determination.

Notes:

Bioenergy Technologies Office (BETO)
This NEPA determination does not require a tailored NEPA Provision.
NEPA review completed by Dan Cahill, 10/22/2021.

FOR CATEGORICAL EXCLUSION DETERMINATIONS

The proposed action (or the part of the proposal defined in the Rationale above) 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 proposed action that may affect the significance of the environmental effects of the proposal.

The proposed action 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.

The proposed action is categorically excluded from further NEPA review.

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature: Electronically Signed By: Roak Parker Date: 10/25/2021

NEPA Compliance Officer

FIELD OFFICE MANAGER DETERMINATION

☑ Field Office Manager review not required
☐

Field Office Manager review required

BASED ON MY REVIEW I CONCUR WITH THE DETERMINATION OF THE NCO :

Field Office Manager's Signature: _____ Date: _____

Field Office Manager