

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



RECIPIENT: Colorado School of Mines

STATE: CO

PROJECT TITLE: Efficient CO2 Use for Robust Marine Microalgae Biomass Yields (MASS)

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0002654	DE-EE0010292	GFO-0010292-001	GO10292

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.

Rationale for determination:

The U.S. Department of Energy (DOE) is proposing to provide funding to the Colorado School of Mines (Mines) to test technologies and techniques intended to increase the efficiency of carbon dioxide utilization during algae production.

Algae production and cultivation activities would occur at existing, purpose-built laboratories and outdoor facilities. Production activities would include directed evolution techniques, i.e., manipulating the growth environment to facilitate the growth of strains with mutations which promote productivity in certain environments (e.g., high pH). Different methods of manipulating the growth environment would be implemented to assess methods which maximize efficiency of algae growth and productivity. Such activities would include the design, fabrication, and operation of a system which could recycle media which provides nutrients for the algae. Additional mutant strains would be generated using genetic engineering technologies and techniques. Additional laboratory activities would include characterization of algae strains, which would include genetic sequencing.

Prior to outdoor algaculture activities, relatively minor modifications to the outdoor growing facility would be completed. Such activities would include ground disturbing activities (e.g., trenching) and equipment installation. Equipment to be installed would include three algae raceways (43 square meters, each) and supporting equipment. The affected area would measure less than once acre.

Additional award activities would include those of an intellectual, academic, and analytical nature. Such activities would support the completion of a life cycle analysis (LCA) and techno-economic analysis (TEA).

Laboratory activities would occur at Mines (Golden, CO), the National Renewable Energy Laboratory (NREL) (Golden, CO), Stanford University (Palo Alto, CA), and MicroBio Engineering (San Luis Obispo, CA). Outdoor algaculture activities would occur at the MicroBio Engineering Azul Farms facility (Paso Robles, CAS). Such activities would involve typical hazards associated with laboratory activities, raceway installations, and algaculture, including handling and use of hazardous materials and operation of potentially hazardous equipment and vehicles. Existing health, safety, and environmental policies and procedures would be followed to mitigate hazards to acceptable levels. Mitigated hazards would pose negligible risks to the public and environment. All activities would comply with existing federal, state, and local laws and regulations. All activities would comply with conditions of existing permits.

DOE completed informal consultation with the U.S. Fish and Wildlife Service (FWS) per Section 7 of the Endangered

Species Act (ESA) to determine potential impacts on federally listed species and critical habitats. DOE received a letter of concurrence (LOC) from FWS (07/25/2023) stating their concurrence that the award activities would not likely adversely affect listed species or critical habitats, but this concurrence is contingent on conservation measures being properly implemented by all award participants. The conservation measures that would be implemented are described in the LOC.

DOE has considered the scale, duration, and nature of proposed activities to determine potential impacts on resources, including those of an ecological, historical, cultural, and socioeconomic nature. DOE does not anticipate impacts on these resources which would be considered significant or require DOE to consult with other agencies or stakeholders aside from consultations that have already been mentioned. A diversity, equity, and inclusion (DEI) plan would be implemented to encourage the inclusion of individuals from underrepresented groups in fields of science, technology, engineering, and mathematics (STEM).

Any work proposed to be conducted at a federal facility may be subject to additional NEPA review by the cognizant federal official and must meet the applicable health and safety requirements of the facility.

NEPA PROVISION

DOE has made a final NEPA determination.

Notes:

Bioenergy Technologies Office (BETO)
NEPA review completed by Dan Cahill, 07/25/2023.

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:


NEPA Compliance Officer

Date: 7/26/2023

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: _____
Field Office Manager

Date: _____