

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



RECIPIENT: [MicroBio Engineering](#)

STATE: CA

PROJECT TITLE: [Scale-up of Hydrothermal Liquefaction with Supercritical Water Oxidation in an Integrated Biorefinery](#)

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0002638	DE-EE0010462	GFO-0010462-001	GO10462

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 [MicroBio Engineering](#) to demonstrate a reduction in nitrogen levels and toxicity of Hydrothermal Liquefaction (HTL) through treatment with supercritical water oxidation; design a pilot testing facility; and define a regulatory, intellectual, and economic pathway towards commercial scale-up of plant diverting mixed wet wastes from land applications to low-carbon biocrude.

This project would be implemented over two phases. Phase 1 would be divided into two Budget Periods (BPs) and would consist of design work to estimate the pilot site layout, equipment lists, and specifications required for installed costs. BP1 would include verification of technology readiness level and data in experimental trail. PB2 would include design and planning of pilot testing scale up operations. BP2 Subtask 7.1 would include finalization of project site, feedstock supply, and biocrude off-take. Phase 2 would consist of final design, construction, and operation of the pilot test site. However, at this time, there is insufficient information to review BP2 subtask 7.1 or phase 2 activities. As such, this NEPA determination (ND) only applies to activities listed under BP1 and BP2 to include Task 1 through Task 6 (including all subtasks), subtasks 7.2 through 7.4, and Task 8.

Design, development, and coordination activities would happen at [MicroBio Engineering](#) in San Luis Obispo, California; design, storage, and shipment of HTL would happen at Pacific Northwest National Laboratory (PNNL) in Richland, Washington; water quality analysis, onsite surveying, and design review would happen at Great Lakes Water Authority (GLWA) in Detroit, Michigan; and pilot design, pilot testing, and sample analysis would happen at General Atomics in San Diego, California.

Project activities would involve the use and handling of hazardous materials such as hydrothermal liquefaction chemicals. Handling, storage, and disposal of hazardous materials would occur within controlled settings. Existing health and safety policies and procedures would be followed, including employee training, proper protective equipment, engineering controls, monitoring, and internal assessments. Additional policies and procedures would be implemented as necessary as new health and safety risks are identified.

All project work would be performed at existing, purpose-built laboratory facilities. No modifications to existing facilities, ground disturbing activities, or changes to the use, mission, or operation of existing facilities would be required. DOE does not anticipate any impacts to resources of concern due to the proposed award activities.

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 conditional NEPA determination.

The NEPA Determination applies to the following Topic Areas, Budget Periods, and/or tasks:

Tasks 1 through Task 6 (including all subtasks), subtasks 7.2 through 7.4, and Task 8.

The NEPA Determination does not apply to the following Topic Area, Budget Periods, and/or tasks:

Subtask 7.1 and Phase 2 activities.

Notes:

Bioenergy Technologies Office
NEPA review completed by Jason Spencer, 01/22/2024

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.

A portion of the proposed action is categorically excluded from further NEPA review. The NEPA Provision identifies Topic Areas, Budget Periods, tasks, and/or subtasks that are subject to additional NEPA review.

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature: _____



Andrew Montano

NEPA Compliance Officer

Date: 1/23/2024

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: _____