PMC-ND
(1.08.09.13)

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

RECIPIENT: Montana State University Energy Research Institute **STATE:** MT

PROJECT TITLE: Development of a scalable, robust electrocatalytic technology for conversion of CO2 to formate salt via graded microstructures and development of a bioengineered C1 pathway for subsequent upconversion to ethylene glycol

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0001916	DE-EE0008499	GFO-0008499-001	GO8499

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:

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.
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.)

Rationale for determination:

The U.S. Department of Energy is proposing to provide funding to Montana State University Energy Research Institute to conduct a lab-scale research and modeling project with the goal of developing a method to convert CO2 to ethylene glycol. The project would be completed over three Budget Periods (BP). During, BP1 the recipient would set up facilities for fabrication and testing. During BP2, the recipient would demonstrate the process. During BP3, the recipient would scale and optimize the process.

Project activities include bench top lab-scale research equipment assembly and operation, identification and characterization of enzyme candidates, characterization of bacterial host trains, engineering conversion microorganisms, and fabrication, testing and scaling studies of operational prototypes. Research and development activities would be conducted in permitted research facilities at Montana State University, DNVGL in Dublin, Ohio and the University of South Florida. These laboratory facilities have the required permits and appropriate procedures to handle and dispose of all materials that would be used during the course of the project. Administrative activities and computer modeling activities would take place in office settings.

At the University of South Florida, laboratory activities would include the generation and use of recombinant DNA and microorganisms. All lab work would be conducted in accordance with Biosafety Level 1 containment and safety requirements under the NIH Guidelines for research involving recombinant DNA molecules and established protocols and procedures.

At the Montana State University, laboratory activities would include the use of nanoscale tin as a catalyst material. The primary risk in using this material is flammability of the metal powder. These project activities would be done by researchers with proper training and experience using proper equipment in a laboratory with no flame sources.

No field testing will be conducted and no major modifications will be made to existing facilities as part of this project.

NEPA PROVISION

DOE has made a final NEPA determination.

Notes:

This NEPA Determination does not require a tailored NEPA Provision
Bioenergy Technologies Office

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: Kristin Kerwin Date: 11/30/2018

NEPA Compliance Officer

FIELD OFFICE MANAGER DETERMINATION

- [x] 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