

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



RECIPIENT: Archer Daniels Midland, Co. (ADM)

STATE: IL

PROJECT TITLE : Continuous Biobutanol Fermentation Integrated with Membrane Solvent Extraction

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0002396	DE-EE0009766	GFO-0009766-001	GO9766

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 Archer Daniels Midland, Co. (ADM) to develop, test, construct and demonstrate a continuous process system (> 100 hours) for extracting sustainable aviation fuel (SAF) grade isobutanol from fermentation of pea starch.

DOE has not previously completed any NDs for this specific award, however DOE previously completed an ND (FOA-0002396-001; A9, B3.6; 5/20/2021) for Funding Opportunity Announcement (FOA) DE-FOA-0002396. The ND for the FOA applies to initial verification activities for awards issued under the FOA, including this award (DE-EE0009766).

This award would be completed over three budget periods (BPs). All activities would occur in controlled laboratory settings over four locations: ADM research facilities (Decatur, IL), the University of Minnesota's Kaufert Laboratory (Falcon Heights, MN), Gevo Inc. research facilities (Englewood, CO), and Argonne National Laboratory (ANL) facilities (Lemont, IL). Activities within this award involve information gathering, analyses, developing baselines, production of pea starch hydrolysate, fermentation of pea starch hydrolysate to create isobutanol, testing, modeling, characterizing and reporting. Existing ADM pilot plant equipment such as motors, control instruments, and piping would be upgraded to meet requirements of the project. An existing membrane solvent extraction (MSE) system at ADM will be retrofitted to a new fermentation integrated membrane solvent extraction (FIMSE) system within the existing research facility. No heavy equipment will be needed, and no outdoor work or ground disturbing activities would occur.

All facilities at ADM, University of Minnesota, Gevo Inc., and ANL are purpose-built for the type of work to be conducted in this award. All microorganisms used for this award would be inactive prior to discharge to the facility wastewater systems. All inactive organisms would fall under the lowest risk categories concerning individual and public health as described by federal agencies, Biosafety Level 1 (BSL-1) and Risk Group 1 (RG1). Carbon dioxide vapors would be emitted during the fermentation process. All emissions would be emitted in lab and pilot plant settings, in compliance with existing facility permits. Award activities would involve the handling and use of hazardous materials such as solvents and isobutanol. Handling and storage of hazardous materials would occur within controlled settings and would follow existing policies and procedures for storage, handling and disposal of these materials. Existing government, university and corporate health, safety, and environmental policies and procedures would be followed at all facilities, including personnel training, proper personal protective equipment (PPE), engineering controls, monitoring, and internal assessments.

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 Amy Lukens, 3/16/2022.

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: Casey Strickland Date: 3/16/2022
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