

PMC-ND

(1.08.09.13)

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

**RECIPIENT:** Purdue University**STATE:** IN

PROJECT TITLE: Higher energy-content jet blending components derived from ethanol

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0002029	DE-EE0008920	GFO-0008920-001	GO8920

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 Purdue University Develop a commercially viable process to convert a butene-rich olefin intermediate into a cyclic-rich jet-range hydrocarbons with 60 wt.% selectivity to cycloalkanes. The proposed project would include production, development and testing of various aviation fuel blends, as well as a Techno-Economic Analysis and Life Cycle Analysis.

Purdue will lead a research team that include the Pacific Northwest National Laboratory (PNNL) and Lanza Tech.

After an initial verification of research design, PNNL would run experiments for conversion of ethanol to butadiene using a catalyst. These tasks include catalyst synthesis, catalyst activation, and reactor operation with the catalyst. PNNL would produce various quality of product throughout the life of the project. PNNL would produce a total of approximately 5 gallons of hydrocarbon fuel during the life of the project.

Fuel will then be shipped to Purdue where hydrocarbon analysis would occur. Testing would include gas chromatography, Infrared Absorption, and Nuclear Magnetic Resonance. Testing will measure a variety of conditions including viscosity, density, surface tension, and swelling. Analysis of results would be conducted by Purdue to confirm conversion yields and processing techniques. Purdue would also conduct the Techno-Economic Analysis and Life Cycle Analysis.

Lanza Tech would offer technical consulting fort the project, but will perform no research or laboratory resting.

All project tasks would occur in pre-existing laboratory facilities. Tasks would include use of pre-existing equipment to conduct bench scale production and testing of fuels at facilities that regularly engage in this type of work. Work would include use of hazardous chemical and use of equipment. Existing University and Federal laboratory health and safety procedures would be followed. All hazardous waste would be disposed of in accordance with local, state, and federal requirements. No new permits or modifications to facilities would be required.

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 Technology Office

This NEPA determination does not require a tailored NEPA provision.

Review completed by Roak Parker, 11/05/2020

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: _____

 **Roak Parker**
NEPA Compliance Officer

Date: 11/6/2020

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: _____