

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



RECIPIENT: The Ohio State University

STATE: OH

PROJECT TITLE : Bench-Scale Development of Facilitated Transport Membranes for Olefin/Paraffin Separations

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0002997	DE-EE0011209	GFO-0011209-001	GO11209

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 administer federal funding to Ohio State University for the development of a cost-effective design and fabrication process for transformational facilitated transport membranes (FTMs) and membrane modules for energy-efficient olefin/paraffin separation (propylene/propane). Project activities would consist of data collection and analysis; research and development; laboratory operations; and topical report preparation.

Research and development and data analysis of the process would occur at Koffolt Laboratory, the dedicated Ohio State University Facility in Columbus, OH. Trimeric Corporation, in Buda, TX, would develop techno-economic analysis and lifecycle assessment; Zenith Purification LLC - Dedicated Laboratory Facility in Missouri City, TX, would assist with propylene/propane gas permeation measurements on flat-sheet membrane performances, data analysis and topical report preparation.

All project activities under Budget Period 1, Tasks 1 through 4 and Budget Period 2, Tasks 5 through 10 would be completed in existing, purpose-built facilities. No facility modifications, new permits, or licenses would be needed to perform project activities. DOE would complete an additional NEPA review for Budget Period 3, Tasks 11 through 19 when sufficient information is available to conduct a meaningful review.

Potential hazards include the handling of chemical reagents and organic solvents. Award recipients would adhere to established health and safety policies and procedures when performing project work, and would observe all applicable federal, state, and local health, safety, and environmental regulations.

Air emissions related to this project are expected to be negligible and all project work locations are within USEPA Attainment Areas. Therefore, no criteria pollutants will be admitted.

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.

NEPA PROVISION

DOE has made a conditional NEPA determination.

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

[Budget Period 1, Tasks 1 through 4,](#)
[Budget Period 2, Tasks 5 through 10.](#)

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

[Budget Period 3, Tasks 11 through 19.](#)

Notes:

[Industrial Efficiency and Decarbonization Office](#)
[NEPA review completed by Meagan Jacobsen, June 25, 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: _____


NEPA Compliance Officer

Date: 6/27/2024

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: _____