

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



RECIPIENT: Alder Fuels

STATE: DC

PROJECT TITLE : Field-to-Fuel Production of Carbon-Negative Sustainable Aviation Fuel from Regenerative Agriculture Biomass

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0002396	DE-EE0009753	GFO-0009753-001	G09753

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.

B5.15 Small-scale renewable energy research and development and pilot projects

Small-scale renewable energy research and development projects and small-scale pilot projects, provided that the projects are located within a previously disturbed or developed area. Covered actions would be in accordance with applicable requirements (such as local land use and zoning requirements) in the proposed project area and would incorporate appropriate control technologies and best management practices.

Rationale for determination:

The U.S. Department of Energy (DOE) is proposing to provide funding to Alder Fuels, LLC (Alder) to produce sustainable aviation fuel (SAF) from biomass feedstock (i.e. miscanthus). The award would culminate with a test flight using blended jet fuel which would include SAF produced by award activities.

DOE has not previously completed any NEPA Determinations (NDs) for this specific award, but DOE previously completed a NEPA Determination (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-EE0009753, Budget Period 1). This ND (GFO-0009753-001) does not apply to Budget Period (BP) 4 activities. BP4 activities would include a test flight using SAF produced from award activities, but flight logistics are unknown at this time and are contingent on BP1-3 outcomes, all of which would be evaluated during a Go/No-Go review with DOE. DOE will complete the NEPA review for BP4 when sufficient information is available to conduct a meaningful review.

Award activities would involve the cultivation of approximately 1200 acres of existing farmland managed by AGgrowTech, LLC in southeast Iowa using regenerative agriculture practices. Approximately 22 metric tons of feedstock (*Miscanthus x giganteus*) would be harvested up through BP3. Feedstock would be transported to Idaho National Laboratory (INL) (Idaho Falls, ID) for processing and characterization.

Feedstock would later be transported to BTG Bioliquids (Enschede, Netherlands) for conversion to bio-oil via fast pyrolysis. Alder and the National Renewable Energy Laboratory (NREL) would process and hydrotreat the bio-oil to produce biofuel at NREL facilities (Golden, CO). Additional hydrotreating would occur at Honeywell Universal Oil Products (UOP) (Riverside, IL). The biofuel would be characterized and blended by the University of Dayton Research

Institute (UDRI) (Dayton, OH) to produce blended SAF that meets American Society for Testing and Materials (ASTM) specifications. SAF would also be characterized by Washington State University (WSU) (Pullman, WA). Conversion and characterization activities would use conventional laboratory methods and technologies. Conversion processes would be evaluated and refined continuously throughout the award to optimize biofuel production. Approximately 1100 gallons of bio-oil would be produced. Approximately 3 gallons of SAF would be produced and sent to Alder for laboratory tests (characterization).

All facilities are preexisting purpose-built facilities for the type of work to be conducted for this award. Facility modifications would not be required. Award activities would involve the handling and use of hazardous materials, including fertilizers, pesticides, chemical solvents, toxic gases, and combustible fuels and intermediates. All such handling and storage would occur within controlled, purpose-built settings and would follow existing policies and procedures for handling and disposal of these materials. Award activities would involve typical hazards associated with agricultural activities, including the handling and operation of heavy equipment, machinery, and vehicles. Existing corporate, government, and university 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.

Additional award activities would include those of an intellectual, academic, and analytical nature. Such activities would support the completion of a life cycle analysis (LCA), techno-economic analysis (TEA), and carbon flux modeling. Such activities would be completed by Alder, NREL, and the University of Illinois at Urbana-Champaign (UIUC).

DOE has considered potential impacts on resources, including those of an ecological, historical, cultural, and socioeconomic nature. DOE does not anticipate adverse impacts on these resources.

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:

[Budget Period 2](#)
[Budget Period 3](#)

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

[Budget Period 4](#)

Notes:

[Bioenergy Technologies Office \(BETO\)](#)
[NEPA review completed by Dan Cahill, 09/19/2022.](#)

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.

DOE has determined that work to be carried out outside of the United States, its territories and possessions is exempt from further review pursuant to Section 5.1.1 of the DOE Final Guidelines for Implementation of Executive Order 12114; "Environmental Effects Abroad of Major Federal Actions."

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:  _____ Date: 9/20/2022
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