

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



**RECIPIENT:** Algenesis Materials, Inc.

**STATE:** CA

**PROJECT TITLE:** Pre-Pilot Scale Production of Algae-based Jet Fuel and Polyurethane Monomers

<b>Funding Opportunity Announcement Number</b>	<b>Procurement Instrument Number</b>	<b>NEPA Control Number</b>	<b>CID Number</b>
DE-FOA-002638	DE-EE0010459	GFO-0010459-001	GO10459

**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 Algenesis Materials, Inc. (Algenesis) to establish and test a scaled supply and conversion process using algae biomass for the generation of polyurethane monomers to produce a line of prototype consumer products. The award also aims to produce American Society for Testing Materials (ASTM) certified renewable jet fuels from precursors of the same process.

Award activities include data analysis, computer modeling, preliminary engineering/design, laboratory research, and modifications to existing facilities. Additional award activities would include those of an intellectual, academic, and analytical nature. Such activities would support the completion of a techno-economic analysis (TEA) and life cycle analysis (LCA). The award consists of three Budget Periods (BPs). BP1 would involve verification activities such as validation of the project team, partners, objectives, facilities, and processes. Equipment procurement, facility modifications, equipment installations, and the successful operation of the equipment and individual processes would provide the framework for BP2. BP3 activities would integrate the processes to run continuously, engage corporate partners in the development of prototype consumer products, and end with the completion of a TEA/LCA.

Algenesis (San Diego, CA) would perform verification activities, the installation and operation of process equipment, and quality control and data analysis activities. Global Algae Innovations (GAI) would be responsible for algae, algae oils, and ASTM certified jet fuel production at their algae farm in Shandon, CA. Trelleborg Engineered Coated Fabrics (Trelleborg; Rutherfordton, NC) would produce coated fabrics at their factory from the thermoplastic polyurethanes (TPUs) produced by Algenesis. Patagonia (Ventura, CA) would use Trelleborg's TPU-coated fabrics to produce outdoor industry-relevant prototypes within their manufacturing facilities. Lastly, University of California, Davis (Davis, CA) would conduct TEA/LCA at on-campus facilities.

Algenesis is currently investigating three potential locations to house conversion process operations. Only one location will be selected for the award. All three locations are existing facilities that would require modifications for proposed award activities. Facility modifications include air handling improvements and electrical upgrades to safely install, connect, and operate the chemical fume hoods and other proposed equipment. All modifications would occur indoors except for the installation of air handling units on the roof. No ground disturbance would occur as a result of these facility modifications or any other award activities. Furthermore, all other facilities associated with the award are preexisting purpose-built facilities for the type of work to be conducted at those facilities. Therefore, additional facility modifications would not be required.

Award activities would involve typical hazards associated with the use and handling of hazardous materials, including industrial solvents, ozone, chemicals under high pressure and/or temperature, fuels, and sharp objects as well as the operation of industrial machinery. Algenesis would ensure that all hazardous material handling within their facility would occur in lab, with high pressure and ozone generating equipment placed inside chemical fume hoods. GAI's handling of hazardous materials would occur in lab or in designated conversion facilities. Additionally, all hazardous material handling at Trelleborg and Patagonia would occur within designated facilities designed for the work to be performed under this award. For all facilities and project partners, the design of systems would specifically include safety monitoring devices and automatic cutoff switches or feedback systems to mitigate and reduce hazards to acceptable levels. Each facility would be dedicated to proper hazardous material handling and disposal practices, and all materials would be transported, controlled, and disposed of according to federal, state, and local regulations. Existing corporate health and safety, and environmental policies and procedures would be followed, including employee training, proper personal protective equipment, engineering controls, monitoring, and internal assessments. Mitigated hazards would pose negligible risks to the public and environment.

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 final NEPA determination.

Notes:

Bioenergy Technologies Office  
NEPA review completed by Corrin MacLuckie, 08/09/2023.

## 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: Andrew Montano

NEPA Compliance Officer

Date: 8/9/2023

## 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: \_\_\_\_\_