

PMC-ND
(1.08.09.13)

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



RECIPIENT:LanzaTech

STATE: IL

PROJECT TITLE : Low Carbon Hydrocarbon Fuels From Industrial Off Gas

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0001232	DE-EE0007966	GFO-0007966-001	GO7966

Based on my review of the information concerning the proposed action, as NEPA Compliance Officer (authorized under DOE Order 451.1A), 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 federal funding to LanzaTech to design and develop plans for a demonstration-scale integrated biorefinery to convert industrial waste gases into aviation biofuels via gas fermentation coupled with an alcohol-to-jet process. This NEPA determination is for Phase 1 including both Budget Periods 1 and 2. If the recipient is selected to move forward into Phase 2, further NEPA review will be necessary once Phase 2 tasks are defined.

Activities associated with Phase 1 of the proposed project would include: data analysis; computational modeling; preliminary engineering and design; financial, management and business planning; site permitting; laboratory research and development (R&D); and short-term pilot-scale production taking place strictly at existing facilities for the purpose of process validation. Data analysis, modeling, and other desktop planning and design work would be undertaken at the business offices of LanzaTech and subrecipients. Product quality evaluations (limited to chemical engineering design and computer simulations during Phase 1) would be performed at the offices of Petron Sciencetech in Princeton, NJ.

The proposed laboratory and pilot R&D activities to validate the conversion process and unit operations would include bench- and pilot-scale ethanol production at LanzaTech's dedicated R&D laboratories in Skokie, IL and/or their currently operational Freedom Pines pilot plant in Soperton, GA. These tasks would produce a limited amount of ethanol feedstock for testing (maximum 10 gallons of 85-95% ethanol). The product would be shipped to the Pacific Northwest National Laboratory (PNNL) in Richland, WA for upgrading to jet/diesel fuel and process performance testing. Selected catalysts used in this process would be synthesized by Nexceris, LLC at their industrial manufacturing facility in Lewis Center, OH. Additional commercial catalysts would be provided by CRI Catalyst Company located in Houston, TX. The approximate quantities of catalyst samples used during Phase 1 would range from sub-kg to multi-kg.

All Phase 1 R&D activities would occur entirely within previously developed, purpose-built laboratories and/or pilot plants. No change to the use, mission or operation of existing facilities would arise out of these efforts. Equipment installations and/or physical modifications to existing structures would not be necessary to perform the proposed tasks.

During Phase 1, LanzaTech would coordinate the occasional transport of ethanol between project locations using approved freight companies to ensure compliance with shipping laws and regulations. Ethanol transport is currently a routine operation at their facilities. Project-related work would not significantly increase process output or traffic.

The proposed project would involve the use and handling of hazardous materials. These include toxic, flammable and compressed gases plus ethanol (at LanzaTech's facilities and PNNL) and various hazardous chemicals (at Nexceris and CRI). Such materials are routinely employed at the respective facilities for the types of activities being proposed, and Phase 1 activities would not present materials or risks beyond the scope of current operations. All work would be conducted within designated areas by trained employees following existing corporate health and safety policies and procedures, including personal protective equipment, engineering controls, and lab safety audits. LanzaTech and subrecipients are committed to proper management of hazardous materials in compliance with federal, state, and local environmental regulations. No new permits, licenses or authorizations would be required.

Small quantities of hazardous and non-hazardous waste would be generated as a result of Phase 1 activities. Disposal methods are subject to project location, but all waste would be properly treated and disposed of following standard practices in accordance with local and state ordinances. Efforts would be made to reduce and recycle select byproducts and spent chemicals. Laboratory effluents and treated liquid byproducts such as decontaminated fermentation broth would be monitored to ensure site regulatory criteria continue to be met. Minor and temporary air emissions during process validation activities would be well below allowable limits issued for these facilities. No siting, construction or major expansion of waste storage, disposal, recovery, or treatment actions/facilities would be required.

Any work proposed to be conducted at a DOE laboratory may be subject to additional NEPA review by the cognizant DOE NEPA Compliance Officer for the specific DOE laboratory prior to initiating such work. Further, any work conducted at a DOE laboratory must meet the laboratory's health and safety requirements.

Based on the review of the proposal, DOE has determined the tasks in Phase 1 fit within the class of action(s) and the integral elements of Appendix B to Subpart D of 10 CFR 1021 outlined in the DOE categorical exclusion(s) selected above. DOE has also determined that: (1) there are no extraordinary circumstances (as defined by 10 CFR 1021.410 (2)) related to the proposal that may affect the significance of the environmental effects of the proposal; (2) the proposal has not been segmented to meet the definition of a categorical exclusion; and (3) the proposal is not connected to other actions with potentially significant impacts, related to other proposals with cumulatively significant actions, or an improper interim action. Phase 1 tasks are categorically excluded from further NEPA review.

NEPA PROVISION

DOE has made a conditional NEPA determination for this award, and funding for certain tasks under this award is contingent upon the final NEPA determination.

Insert the following language in the award:

You are restricted from taking any action using federal funds, which would have an adverse affect on the environment or limit the choice of reasonable alternatives prior to DOE/NNSA providing either a NEPA clearance or a final NEPA decision regarding the project.

Prohibited actions include:

Phase 2

This restriction does not preclude you from:

Phase 1 (includes all tasks and subtasks in Budget Periods 1 and 2)

If you move forward with activities that are not authorized for federal funding by the DOE Contracting Officer in advance of the final NEPA decision, you are doing so at risk of not receiving federal funding and such costs may not be recognized as allowable cost share.

Insert the following language in the award:

You are required to:

Any work proposed to be conducted at a DOE laboratory may be subject to additional NEPA review by the cognizant DOE NEPA Compliance Officer for the specific DOE laboratory prior to initiating such work. Further, any work conducted at a DOE laboratory must meet the laboratory's health and safety requirements.

Note to Specialist :

Bioenergy Technologies Office
This NEPA determination requires a tailored NEPA Provision.
NEPA review completed by Whitney Doss, 07/27/2017

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature:  Casey Strickland  Date: 7/27/2017
NEPA Compliance Officer

FIELD OFFICE MANAGER DETERMINATION

Field Office Manager review required

NCO REQUESTS THE FIELD OFFICE MANAGER REVIEW FOR THE FOLLOWING REASON:

- Proposed action fits within a categorical exclusion but involves a high profile or controversial issue that warrants Field Office Manager's attention.
- Proposed action falls within an EA or EIS category and therefore requires Field Office Manager's review and determination.

BASED ON MY REVIEW I CONCUR WITH THE DETERMINATION OF THE NCO :

Field Office Manager's Signature: _____ Date: _____
Field Office Manager