PMC-ND
(1.08.09.13)

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

RECIPIENT: Gas Technology Institute **STATE:** IL

PROJECT TITLE: Cool GTL® for the Production of Jet Fuel from Biogas

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0001926	DE-EE0008507	GFO-0008507-001	GO8507

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 federal funding to Gas Technology Institute (GTI) to demonstrate production of jet fuel from the conversion of bio-gas for less than $3 per gallon of gasoline equivalent.

Proposed activities would be divided into three Budget Periods (BPs). BP1 would only involve an initial verification by DOE that GTI has the facilities, personnel, and expertise to conduct the proposed work.

BP2 would include configuration of GTI's existing biomass pilot plant to process bio-gas for this proposed project. Some refurbished equipment, such as a sulfur bed, a compressor, and safety controls, would be added to the existing system, though no new equipment would be purchased or needed. Configuration would also include the use of pilot plant off gas, which is usually vented, as bio gas for the new system. This would occur at the GTI facility located in Des Plaines, IL. GTI would then conduct short term tests of the system, including a four-hour shakedown test followed by an operational test with a goal to produce approximately 5 gallons of jet fuel. Wood chips, obtained from a vendor (Forest Products, LLC) would be used as a feed-stock. Analysis of the jet fuel would be conducted by GTI to determine key characteristics including freeze point, flash point, boiling point, and isoparafffin to n-paraffin ratio.

In addition, in BP2 GTI would conduct initial techno-economic analysis, life cycle analysis, and engineering and design based on pilot plant data, as well as modeling of particle based fluid dynamics. These tasks would be limited to information gathering, data analysis, and dissemination.

In BP3 GTI would conduct a long-term test of the system. This would include continuous operation of over 1500 hours. The output of the long-term test would be approximately 100 gallons of jet fuel. For long term testing GTI would use up to 6 tons of wood chips supplied by Forest Products, LLC. The jet fuel produced during this stage would be tested to

determine if the fuel meets ASTM D-4054 Tiers 1 and 2 specifications and ASTM D-7566 approvals.

In addition, in BP3 GTI would finalize techno-economic analysis, life cycle analysis, and engineering and design based on pilot plant data, began in BP2.

The GTI research and development facility is a pre-existing permitted research facility purpose built for the type of work to be conducted for this project. No modifications to the facility or new construction would be required. No new permits would be required. At the facility GTI will handle gas mixtures, as well as solid materials and liquid products that could contain hazardous materials. All such handling would occur within the facility and would follow existing corporate policies and procedures for handling and disposal of these products. All hazardous materials would be handled in accordance with existing Federal, state, and local regulations. Existing health and safety policies and procedures would be followed including employee training, proper protective equipment, engineering controls, monitoring, and internal assessments.

Testing of jet fuel produced in BP3 would occur at Intertek at their Deer Park, Texas petroleum, fuel and chemical testing and inspection facility. Work completed by Intertek would occur at existing testing facilities and would be the type of work regularly conducted at those facilities.

Some work on the techno-economic analysis, life cycle analysis, engineering and design, and modeling would be conducted by Michigan Technological University, Particulate Solid Research Inc., and/or Hatch Engineering. These tasks would occur at existing research and office facilities.

NEPA PROVISION

DOE has made a final NEPA determination.

Notes:

This NEPA determination does NOT require a tailored NEPA provision
Bioenergy Technologies Office
Roak Parker 6.28.19

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: Casey Strickland Date: 6/28/2019

NEPA Compliance Officer

FIELD OFFICE MANAGER DETERMINATION

- [x] 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