PMC-ND
(1.08.09.13)

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

RECIPIENT: University of Massachusetts Lowell **STATE:** MA

PROJECT TITLE: Renewable Fuel Additives from Woody Biomass

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0001919	DE-EE0008479	GFO-0008479-001	GO8479

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 federal funding to the University of Massachusetts Lowell (UML) to develop and validate an economical multicomponent liquid bioblendstock with favorable combustion properties for use in medium- and heavy-duty mixing controlled, compression ignition engines.

The proposed project would consist of data analysis, computer modeling, and various laboratory-based research and development (R&D) tasks. Associated activities would include the processing of woody biomass (e.g. sawmill residues) and model compounds (e.g. cellulose) into bio-oil through selective fast pyrolysis, evaluating key properties of the potential fuel additives, and engine testing of blended fuels. Bio-oil processing and testing would occur in dedicated engineering and research laboratories at UML (Lowell, MA). Catalytic upgrading of bio-oil would occur in the Laboratory for Reaction Kinetics and Heterogeneous Catalysis at the University of Maine (Orono, ME). Small samples of the resultant bioblendstocks would be shipped to and tested at subrecipient Mainstream Engineering Corporation (Rockledge, FL). Samples would also be shipped to the DOE National Laboratory Co-Optima team in addition to a 3rd party commercial laboratory for independent fuel property verification.

The quantities of materials used and consumed by the proposed laboratory R&D activities would not exceed bench-scale metrics. The proposed engine testing would be limited in scope and would not generate meaningful amounts of emissions as the total operation time involved in the completion of this task would be less than 24 hours. Small pieces of laboratory equipment fabricated as needed during the course of the project, such as prototype reactors, would remain in-lab and be utilized for future research.

The proposed project would involve the use and handling of potentially hazardous materials, including metals and chemicals. All such work would be conducted within controlled laboratory settings following appropriate handling and disposal practices already in place at these facilities. Existing health and safety policies set forth by the respective universities and private company would be followed, including employee training, proper protective equipment, controls/monitoring, and efficacy assessments. Hazardous materials would be managed in accordance with all

pertinent Federal, state, and local environmental regulations. Standard quantities of laboratory wastes generated by the project during the course of feedstock processing and biofuel production would be disposed of in accordance with established university regulations regarding both hazardous and non-hazardous materials.

All project activities would occur entirely within existing, purpose-built research and development (R&D) facilities designed for the type of work being proposed; therefore, no modifications or new permits, additional licenses and/or authorizations would be necessary. No change in the use, mission or operation of existing facilities would arise out of these efforts. 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.

NEPA PROVISION

DOE has made a final NEPA determination.

Include the following condition in the financial assisstance agreement:

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.

Notes:

Bioenergy Technologies Office
This NEPA determination requires a tailored NEPA Provision.
NEPA review completed by Whitney Doss, 2/8/2019

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: 2/8/2019

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