PMC-ND

(1.08.09.13)

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

RECIPIENT: University of Georgia Research Foundation   **STATE:** GA

PROJECT TITLE: Machine learning based modeling framework to relate biomass tissue properties with handling and conversion performances

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0002029	DE-EE0008911	GFO-0008911-001	GO8911

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 Georgia Research Foundation (University of Georgia – 'UGA') to develop non-destructive imaging and machine learning tools to analyze targeted biomass properties, including chemical composition, conversion performance, and handling performance. Southern pine forest residues (SPFR) and corn stover would be collected, separated, and analyzed in laboratory settings using the tools developed as part of the project. Data acquired from assessments would be used to train machine learning algorithms.

Proposed project activities would consist of biomass sample preparation through separation and grinding, biomass characterization, biomass processing (e.g. production of biomass powders), hyperspectral imaging tool development, imaging, computer analysis/modeling, machine learning development, and stakeholder engagement. Biomass would be sourced from regular third-party producers of SPFR and corn stover. Some initial biomass processing (e.g. fractionation) may occur on-site at the production locations.

Biomass characterization and processing would be performed at existing, purpose-built facilities operated by UGA (Athens, GA) and its project partners Oregon State University ('OSU' - Corvallis, Oregon) and the Idaho National Laboratory ('INL' – Idaho Falls, ID). UGA's research activities would focus on SPFR characterization and analysis. SPFR separation/characterization and hyperspectral imaging would be performed at UGA's Warnell School of Forestry & Natural Resources Research Laboratory. Approximately 1,000 kg of SPFR would be processed by UGA over the life of the project. Analytical testing and bulk flow analysis would be carried out at UGA's Riverbend North Research Laboratory. OSU would primarily focus on corn stover characterization and analysis. OSU would perform hyperspectral imaging on SPFR and corn stover samples at laboratory facilities operated by the Wood Science and Engineering Department. Approximately 30 kg of corn stover would be processed by OSU over the life of the project. INL would also focus on corn stover characterization and analysis. INL would perform corn stover separation, characterization, and bulk flow analysis. INL would process approximately 2 – 3 bales of corn stover (approximately 1,000 – 1,500 kg) annually over the three-year project. Additional computer modeling would be performed by the U.S. Department of Agriculture's (USDA) Forest Products Laboratory at its facilities in Madison, WI. No laboratory research would be performed at this location.

No physical modifications to existing facilities, ground disturbing activities, or changes in the use, mission, or operation of existing facilities would be required as part of the project. No additional permits or authorizations would be required.

Project work at USDA's Forrest Product Laboratory would be limited to computer based research, with no significant health or safety risks anticipated. Project work at UGA, INL, and OSU would involve the use and handling of industrial chemicals, reactive gases, and heavy machinery with moving parts. Hazards associated with the use of these materials would be mitigated through the observance of established health and safety policies and procedures. Protocols would include personnel training, the use of personal protective equipment, regular monitoring, and engineering controls. The facilities at UGA, INL, and OSU all feature appropriate safety measures incorporated into the equipment and facilities (e.g. machine guards, emergency shut-off switches, etc.). All waste materials would be disposed of in accordance with established institutional waste management procedures. Fume hoods would be used at all three locations to filter particulate emissions produced. UGA and its project partners would adhere to all applicable Federal, state, and local health, safety, and environmental regulations.

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 final NEPA determination.

Notes:

Bioenergy Technologies Office
This NEPA determination does not require a tailored NEPA provision.
Review completed by Jonathan Hartman, 10/28/2020

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: Roak Parker   Date: 10/29/2020
                                                        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