

PMC-ND

(1.08.09.13)

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



RECIPIENT: University of Tennessee

STATE: TN

PROJECT TITLE : Next Generation Logistics Systems for Delivering Optimal Biomass Feedstocks to Biorefining Industries in the Southeastern United States

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DEA-FOA-0000863	DE-EE0006639	GFO-0006639-001	GO6639

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 the University of Tennessee to support research, development and demonstration of advanced biomass preprocessing systems.

Proposed project activities would include: design and development of an integrated harvest, transport, and merchandizing system; introduction of statistical, process-control methods to reduce feedstock cost and improve feedstock quality and consistency; exploring the potential to formulate feedstock blends from diverse biomass inputs; quantifying the economic and life-cycle gains; and project management. The proposed project would consist of desktop modeling, analysis and design, indoor, bench-scale laboratory work, and outdoor field work.

Analysis of biomass samples and biomass blends would occur at the Biological Engineering Research Laboratory at Auburn University in Auburn, AL. Gasification of biomass and biomass blends using downdraft and bubbling bed fluidized bed gasification reactors would occur at the Forest Products Laboratory at Auburn University in Auburn, AL. Testing of new designs for log trailers and processing of pine trees into various products (biomass, pulpwood, and saw logs) using a mobile log processing machine would occur at privately-owned, pine tree farms that currently have ongoing harvesting operations. Processing of switchgrass and southern pine would occur at existing Genera Energy Inc. facilities in Vonore, TN. Design, fabrication and testing of spectral sensors that characterize biomass would occur at existing PerkinElmer, Inc. facilities in Shelton, CT. Data collection for modeling of formulated biomass blend pellets would occur at Idaho National

Laboratory in Idaho Falls, ID. Biomass pretreatment, conversion and process analysis, technoeconomic analysis and life cycle analysis of the system would occur at North Carolina State University in Raleigh, NC. Processing of wood and switchgrass blends (drying and size reduction), real-time feedstock characterization, and production of energy pellets would occur at the dedicated university pilot plant facility at Georgia Southern University (Herty) in Savannah, GA. Development and testing of biomass characterization and spectral models and analysis of alternative feedstock logistics systems would occur at the University of Tennessee in Knoxville, TN.

The facilities listed above in which lab work would occur have safety and waste disposal procedures in place for use of the materials and equipment contained within. The facilities are designed for this type of research; therefore, no modifications or new permits, additional licenses and/or authorizations would be necessary. This project would not involve the modification of existing facilities, or the construction of new ones. There would be no ground disturbing activities. No equipment would be installed outdoors. There would be no change in the use, mission or operation of existing facilities. All activities at existing facilities would be conducted in compliance with university, local, state, and federal safety and environmental regulations. For all work conducted at DOE laboratories, project activities may be subject to additional NEPA review by the cognizant NEPA Compliance Officer for the lab and will be required to meet the labs health and safety requirements.

Task 1, Subtask 1.1 and 1.2 activities would include field trials of the biomass processing system (harvest, transport and merchandizing) at ongoing pine tree farms. The outdoor field work would be conducted in conjunction with private industry timber harvests that are part of ongoing silvicultural operations on privately owned forestlands. The sites for these tests have not been determined at this time, but are expected to be in the area around Auburn, AL. The timber harvests would be limited in scale to allow testing and demonstration of the new engineering concepts. Field activities would involve loading and unloading of logs and wood chips to and from trucks, and handling logs with the log-processing machine. The recipient would use GPS units and computers to collect data from the equipment. Approximately 3,000 tons of biomass over the three year duration of the project would be harvested and processed as part of the proposed project. At 25 tons per truck load, a total of 120 truck trips over the three years would be expected as a result of proposed project. This would be a minimal amount of truck traffic compared to an average of 120 trips per day going to a pulp mill. The rate of harvesting and processing activities and truck traffic associated with the proposed project would not be an increase beyond normal site production.

Based on review of the project information and the above analysis, DOE has determined that the proposed activities would not have a significant individual or cumulative impact to human health and/or environment. DOE has determined the proposed project is consistent with actions contained in DOE categorical exclusion A9 "information gathering, data analysis and computer modeling," B3.6 "Small-scale research and development, laboratory operations, and pilot projects" and B5.15 "Small-scale renewable energy research and development projects and small-scale pilot projects," and is categorically excluded from further NEPA review.

NEPA PROVISION

DOE has made a final NEPA determination for this award

Insert the following language in the award:

If you intend to make changes to the scope or objective of your project you are required to contact the Project Officer identified in Block 11 of the Notice of Financial Assistance Award before proceeding. You must receive notification of approval from the DOE Contracting Officer prior to commencing with work beyond that currently approved.

Note to Specialist :

Bioenergy Technologies Office

This NEPA Determination does not require a tailored NEPA provision.

NEPA review completed by Logan Sholar, 6/1/15

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature:



Kristin Kerwin

NEPA Compliance Officer

Date:

6/3/2015