

PMC-ND

(1.08.09.13)

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



RECIPIENT: University of Florida

STATE: FL

PROJECT TITLE US-INDIA CONSORTIUM FOR DEVELOPMENT OF SUSTAINABLE ADVANCED
: LIGNOCELLULOSIC BIOFUEL SYSTEMS

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0000506	DE-PI0000031	GFO-0000031-001	

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 Florida to develop and optimize selected, non-food, biomass- (high-yielding biomass sorghum, sweet sorghum, pearl millet, bamboo, and switch grass) based, advanced bio-fuels and bio-based products systems for the U.S. and India. The proposed project would address the second-generation biofuel research and development (R&D) priority area of the US – India Joint Clean Energy Center emphasizing sustainable feedstock cultivation and supply, biochemical conversion technologies for production of second-generation biofuels with minimal environmental impact, and analysis of overall sustainability and supply chain of feedstock as well as biofuel.

The proposed project has five Budget Periods (BP). BP 1 for this project has been completed under management of the Office of Headquarters Procurement Services. This NEPA review is for BP 2 tasks and associated activities only as described in the attached SOPO. Upon completion of BP 2, there will be a go/no go decision made as to whether or not the remaining BP's would be undertaken. BPs 3-5 are prohibited and will require additional NEPA review.

Proposed project activities for BP 2 would include: Development of high-biomass sorghums; Identification of flooding tolerance genes and locally adapted cultivars of sorghum; Development of feedstock production logistics and education and outreach materials; construction of a microbial biocatalyst; determining the fate of land-applied biofuel residues; synthesis high-value, lignin-based biocomposites; defining optimal conditions for mixed feedstock fermentation; analysis of sustainability and cost-effectiveness of biofuels and the environmental, economic, and social consequences of bioenergy production and policies; and project management. The proposed project would consist of

desktop modeling, analysis and design, indoor, bench-scale laboratory work, and outdoor, agricultural field work.

Desktop and computer work related to economic modeling, life cycle analysis and literature reviews would occur at the Virginia Polytechnic Institute and State University in Blacksburg, VA, Montclair State University in Montclair, NJ and Texas A&M University in College Station, TX. Bench-scale fermentations, analytical work, sugar analysis, volatile and nonvolatile organic acid analysis, soil and residue nutrient analysis, biogas analysis, development of improved strains for fermentation, and greenhouse potting trials would occur at the University of Florida in Gainesville, FL in existing laboratories. Bench-scale fermentations, pilot-scale fermentations, deconstruction of lignocellulosic substrates, and analytical work would occur at the existing University of Florida Stan Mayfield Biorefinery Pilot Plant in Perry, FL.

The facilities listed above in which lab work and biorefinery activities 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.

Field work activities would include planting different combinations of switchgrass mixed with other native grasses and forbs under different management scenarios; biomass and soil sampling; and development of improved biomass sorghums and sorghum mapping populations. Both the University of Florida and University of Missouri would use selective breeding to improve switchgrass and sorghum for desired production. No genetically modified organisms would be used in the field work portion of the proposed project. All field work would occur at established private and University farms. Existing private farms where switchgrass biomass feedstock would be grown and analyzed are located in Dewitt, Green Ridge, Strasburg, and Gallatin, MO. Plots at these farms would be six acres in size. Existing University farms where switchgrass biomass feedstock would be grown and analyzed are located in Columbia and New Franklin, MO and Live Oak, FL. Plots at these farms would be one to twenty acres in size. There is a farm in Juana Diaz, Puerto Rico that would be contracted by the recipient to grow seed for the proposed project. All shipments of agricultural products between Puerto Rico and the mainland are subject to US Department of Agriculture (USDA) inspection. Total acreage planted with feedstock crops would equal less than 60 acres. All of the farms that would be used for project activities are ongoing agricultural operations; therefore, there would be no effect to threatened and endangered species or cultural resources. There would be no significant changes to the ongoing agricultural practices regarding watering and pesticide use as a result of proposed field work activities. The proposed project would not result in an increase of product above current levels at any of the farm locations. Any new field work locations not in the list below will require further NEPA review.

Bradford Farm, University of Missouri; 4968 S Rangeline Rd, Columbia, MO 65201

South Farm, University of Missouri; E New Haven Rd, Columbia, MO 65201

Horticultural and Agroforestry Research Farm, University of Missouri; 10 Research Center Rd, New Franklin, MO 65274

Suwannee Valley Agricultural Education Center, University of Florida; 7580 Co Rd 136, Live Oak, FL 32060

Illinois Crop Improvement Association, Finca Potala, Bo. Cintrona, Carr 1, KM115, Juana Diaz, Puerto Rico 00795

Farm A1 (Dewitt) - private

Farm B3 (Green Ridge) - private

Farm C1 (Strasburg) - private

Farm C3 (Gallatin) - private

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 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:

Budget Periods 3-5 tasks

This restriction does not preclude you from:

Budget Period 2 tasks

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 new field work locations not in the list below will require further NEPA review.

Bradford Farm, University of Missouri; 4968 S Rangeline Rd, Columbia, MO 65201

South Farm, University of Missouri; E New Haven Rd, Columbia, MO 65201

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Note to Specialist :

Bioenergy Technologies Office

This NEPA Determination requires a tailored NEPA provision. Please see above.

NEPA review completed by Logan Sholar, 9/02/15

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature: _____

[Handwritten Signature]
NEPA Compliance Officer

Date: _____

9/8/2015

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: _____

Field Office Manager

Date: _____