

PMC-EF2a

(2.04.02)

**U.S. DEPARTMENT OF ENERGY  
EERE PROJECT MANAGEMENT CENTER  
NEPA DETERMINATION**

**RECIPIENT:**Energy & Environmental Research Center**STATE:** ND**PROJECT TITLE :** Center for Biomass Utilization Renewal of Grant DE-FG36-05GO88054

<b>Funding Opportunity Announcement Number</b>	<b>Procurement Instrument Number</b>	<b>NEPA Control Number</b>	<b>CID Number</b>
CDP	DE-FG36-05GO88054	GFO-GO88054-005	GO88054

**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:

**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.

**Rational for determination:**

The U.S. Department of Energy proposes to provide federal funding to the University of North Dakota (UND) Energy & Environmental Research Center (EERC) to demonstrate the feasibility of converting biomass into alternative forms of energy.

Previous NEPA determinations under this award and for similar activities include GFO-08-124 (B3.6; 6-3-2008), GFO-08-124-001 (B3.6, B5.1; 2-22-2010), GFO-08-124-002 (A9, B3.6; 2-22-2010), GFO-08-124-003 (A9, B3.6, B5.1; 11-19-2010), and GFO-GO88054-004 (A9, B3.6, B5.1; 7-25-2011).

Phases 1 and 2 have already been reviewed by DOE and are categorically excluded from further NEPA review. Portions of Phases 2 & 3 have been previously excluded from further NEPA review, however the proposed scope of Phases 2 & 3, including task numbers, have changed. Due to changes in the scope of work, this NEPA determination applies to the changed and newly proposed Phase 2 & 3 activities.

The recipient proposes to add subtasks 2.4 "Advanced Waste-to-Energy Development," and 2.5 "Liquid Biofuels Characterization" to Phase 2. Subtask 2.4 would utilize a coffee-processing waste as a feedstock in the existing advanced fixed bed gasification (AFBG) system. The AFBG would run for a maximum of 80 hours with a maximum feed rate of 15 lbs. per hour, utilizing a total of 1200 lbs. of feedstock with an expected 42,000 scf of syngas produced. The syngas would be composed of CO, CO<sub>2</sub>, N<sub>2</sub>, NO<sub>x</sub>, NH<sub>3</sub>, SO<sub>x</sub>, H<sub>2</sub>S and H<sub>2</sub>, and would be combusted in a stationary electrical generator. This would not exceed the current air permit held by UND EERC. The resulting combustion gases would be vented to the atmosphere. The fuel would produce less than 10% ash and the unburned carbon content, up to 25%, and would be classified as non-hazardous solid waste and delivered to the City of Grand Forks, North Dakota municipal landfill.

Subtask 2.5 would evaluate and characterize liquid biomass materials including algae oil, biodiesel, crude palm oil, jatropha oil, pyrolysis oil, and yellow grease. Small amounts of each liquid would be analyzed in the laboratory following standard practices to handle and dispose of the materials, including solid waste disposal at the landfill.

Subtasks 2.4 and 2.5 would occur at UND EERC located at 15 North 23rd Street, Stop 9018, Grand Forks, North Dakota 58202-9018. The existing EERC laboratory has established safety, laboratory procedure, chemical storage, and waste disposal procedures. Any produced gas would be vented through appropriate fume hoods as required under UND and North Dakota policy. UND operates under an air permit issued by the North Dakota Department of Health and has a written agreement with the local public treatment facility to receive and treat any discharged wastewater.

The recipient would add subtask 3.3 "Performance Testing of Biomass in a Downdraft Gasifier." The scope of work would be conducted at Northern Excellence Seed LLC, which is located at 211 State Highway 11, East Williams, Minnesota 56686. The proposed scope would involve modification to an existing gasification system and performance testing of the feedstock, which is grass seed screenings. The system would run at a maximum of 80 hours with a maximum feed rate of 350 lbs. per hour, utilizing 28,000 lbs. of feedstock with an expected 131,600 scf of syngas produced. The syngas would be composed of CO, CO2, N2, NOx, NH3, SOx, H2S and H2, and would be combusted in a stationary electrical generator. The resulting combustion gases would be vented to the atmosphere. Based on Minnesota Pollution Control Agency facility emissions thresholds for SO2, NOx, and CO, the site does not need to apply for an additional air quality permit because the expected levels would be minimal. The fuel would produce less than 10% ash and the unburned carbon content, up to 25%, would be classified as non-hazardous solid waste and would be combined for transfer to the Lake of the Woods County, Minnesota municipal landfill.

Based on review of the project information and the above analysis, DOE has determined the evaluation and performance testing of additional biomass feedstocks would not have significant individual or cumulative impact to human health and/or environment. DOE has determined that the work outlined is consistent with the actions identified in DOE categorical exclusion B3.6 "small-scale research and development," 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 :

Kelly Daigle 9/26/2012

DOE Share: \$10,968,053  
 Total Project Cost: \$15,857,368

**SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.**

NEPA Compliance Officer Signature: \_\_\_\_\_

Electronically Signed By: Kristin Kerwin *Kerwin*  
 NEPA Compliance Officer

Date: 9/26/2012

**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: \_\_\_\_\_