

PMC-EF2a

(2010)

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



**RECIPIENT:** University of North Dakota Energy & Environmental Research Center

**STATE:** CO

**PROJECT TITLE :** EERC Center for Biomass Utilization 2008

|  |                                      |                            |                   |
|--|--------------------------------------|----------------------------|-------------------|
| <b>Funding Opportunity Announcement Number</b> | <b>Procurement Instrument Number</b> | <b>NEPA Control Number</b> | <b>CID Number</b> |
|  | DE-FG36-08GO88054                    | GFO-08-124-001             | 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** Siting, construction (or modification), operation, and decommissioning of facilities for indoor bench-scale research projects and conventional laboratory operations (for example, preparation of chemical standards and sample analysis); small-scale research and development projects; and small-scale pilot projects (generally less than two years) conducted to verify a concept before demonstration actions. Construction (or modification) will be within or contiguous to an already developed area (where active utilities and currently used roads are readily accessible).
- B5.1** Actions to conserve energy, demonstrate potential energy conservation, and promote energy-efficiency that do not increase the indoor concentrations of potentially harmful substances. These actions may involve financial and technical assistance to individuals (such as builders, owners, consultants, designers), organizations (such as utilities), and state and local governments. Covered actions include, but are not limited to: programmed lowering of thermostat settings, placement of timers on hot water heaters, installation of solar hot water systems, installation of efficient lighting, improvements in generator efficiency and appliance efficiency ratings, development of energy-efficient manufacturing or industrial practices, and small-scale conservation and renewable energy research and development and pilot projects. The actions could involve building renovations or new structures in commercial, residential, agricultural, or industrial sectors. These actions do not include rulemakings, standard-settings, or proposed DOE legislation.

**Rational for determination:**

The University of North Dakota (UND) Energy & Environmental Research Center (EERC) proposes to use DOE CDP funding to demonstrate the feasibility of converting biomass into alternative forms of energy.

The project will be divided into three tasks:

- Task 1 – Small-Scale Biomass Conversion to Energy, Fuels, and Biobased Chemicals
- Task 2 – Large-Scale Biomass Conversion to Energy, Fuels, and Biobased Chemicals
- Task 3 – Project Management, Educational Outreach, and Strategic Studies

Laboratory testing will be conducted at the UND EERC located at 15 North 23rd Street Grand Forks, North Dakota. Shakedown testing will take place at the Valley Forest Wood Products (48985 State Highway 38, Marcell, Minnesota). Microgasifier testing that will take place at the Northern Excellence Seed, LLC grass seed processing facility which has an installed industrial-scale gasifier.

Task 2 centers on larger-scale thermochemical conversion testing to develop systems and products of bioenergy and biofuels. Larger scale is defined here as industrial utility-scale power or biorefinery sizes. The EERC will conduct two 200-hour gasification tests on the EERC 300- to 400-lb/hr pilot-scale prototype TRDU at the EERC facility. A second activity under Task 2 will be to test the gasification properties of turkey litter. This will involve physicochemical analysis of the turkey waste for typical combustion gasification analysis, such as proximate/ultimate analysis, etc., prior to the gasification test. The turkey waste gasification will be conducted in the EERC's fixed-bed pilot plant gasifier.

Two small strategic studies activities to be completed under this task are gasification of *Misanthus Giganteus* in a portable trailer-mounted microgasifier and gasification evaluation of waste grass seed, an agricultural waste product, in an industrial-scale fixed-bed gasifier. Gasification of the *Misanthus Giganteus* will take place at the EERC utilizing an existing portable microgasification system. This microgasifier testing will take place over 2 days. Gasification testing of the grass seed waste will take place at an existing Northern Excellence Seed, LLC grass seed processing facility with an installed industrial-scale gasifier that is located in Williams, Minnesota. Gasification testing at the grass seed processing plant will take place over the course of at least a week on location.

The EERC has an Air Pollution Control, Minor Source Permit (#O78004) to operate in North Dakota by the state's Department of Health. This permit applies to and identifies systems larger than laboratory-scale units located and



operated at the EERC. The permit limits emissions from individual and unit combinations in order to prevent impacts on ambient air quality.

As indicated by EERC, the proposed project will make use of an existing small-scale gasifier listed on the EERC's Permit to Operate. Therefore, it will not be necessary to obtain a new permit in support of this project. The EERC will notify the North Dakota Department of Health of planned changes to the existing gasification system in support of the project, anticipated emissions from the system, and document the methodology planned to control emissions. In this case, a thermal oxidizer will be used to oxidize gasification process gases prior to their discharge from an existing stack consistent with permit requirements.

This project comprises conventional laboratory operations and demonstration of actions to conserve energy; therefore the project qualifies for a CX B3.6 and B5.1

**NEPA PROVISION**

DOE has made a final NEPA determination for this award

Insert the following language in the award:

Note to Specialist :

none

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

NEPA Compliance Officer Signature:  Date: 06/21/10  
NEPA Compliance Officer

**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: \_\_\_\_\_ Date: \_\_\_\_\_  
Field Office Manager