

PMC-ND

(1.08.09.13)

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

**RECIPIENT:** Humboldt State University**STATE:** CA**PROJECT TITLE:** Waste to Wisdom: Utilizing forest residues for the production of bioenergy and biobased products

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
	DE-EE0006297	GFO-0006297-003	GO6297

**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.)

**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 Humboldt State University Sponsored Programs Foundation (HSU) to research the production of bioenergy and bio-based products through the utilization of forest residues (defined as the biomass material remaining in forests that have been harvested for timber) using different biomass conversion technologies (BCTs) and optimized biomass operations logistics. HSU would conduct field-based experiments to develop innovative tools and systems that improve the economics, accessibility, and production of quality feedstock from forest residues; develop and test field-deployable BCTs to evaluate the economic feasibility of commercialization of BCTs for the production of biochar, torrefied pellets, and briquettes; and perform macro- and micro-economic and life cycle analyses to quantify the life cycle economic and environmental benefits of utilizing forest residues with BCTs for the production of bioenergy and bioproducts.

DOE completed two previous NEPA determinations for subtasks defined in Tasks 1, 2, 3, and 4 (GFO-0006297-001, CX A9, B3.6, B3.8, B3.11, 12/20/2013 and GFO-0006297-002, CX A9, B3.6, 7/7/2014) which included project management, feedstock development, and biofuels, bio-based product development and analysis, and testing and field deployment of biochar production equipment. This NEPA determination applies to Subtasks 3.4 and 3.6 only.

Activities included in Subtask 3.4 and Subtask 3.6 would consist of deployment and field-testing of a pilot-scale torrefaction machine, a briquetting machine, a 20 kW gasification generator set, and a small biomass dryer. All equipment would be located at an existing forest operations site owned by Green Diamond Resources Company in Big Lagoon, CA. Operations and equipment would be restricted to the concrete foundation pads of a no longer existing sawmill. There would be no construction associated with the proposed project. There would be no discharge of liquid or solid waste on the site. No chemical additives would be added to the biomass feedstock used during the testing. The pilot-scale torrefaction machine is trailer-mounted and consumes raw wood chips and generates a small amount of condensate and torrefied biomass chips as the final product. The condensate would be collected in a stainless steel chamber integral to the machine, stored in a sealed, five-gallon bucket, and disposed of through Humboldt State University's Environmental Health and Safety Department. The total volume of condensate produced during the testing period is estimated to be between one and two gallons. The torrefied wood chips would be brought to Humboldt State University (HSU) for testing. The torrefier would be at



the site for eight weeks and would be in operation for approximately 28 six-hour days during this period with an expected yield rate of 19 pounds of torrefied biomass per hour. At this rate and duration, approximately 3,700 pounds of feedstock would be converted into 3,100 pounds of torrefied biomass. In addition, approximately 100 gallons of propane would be used by the automated flare system. The briquetter is a hydraulic machine that compresses raw woodchips into bricks that can be used in wood stoves. The machine is approximately 15 feet long and 6 feet wide. The only product from this machine is biomass briquettes, which would be brought to HSU for testing. The briquetter would be at the site for five weeks and would be in operation for 16 six-hour days during this period with an expected yield rate of 400 bone dry pounds per hour. At this rate and duration, approximately 19 bone dry tons (BDT) of biomass would be converted into 19 BDT of briquettes. The gasifier generator set consumes wood chips and generates electricity. This unit is portable and comparable in size to a large refrigerator. The products from this machine are a small amount of ash and electricity. The gasifier is expected to generate approximately 300 pounds of char and 120 pounds of ash over the course of the testing. The char and ash would be stored in sealed, 55 gallon, steel drums and disposed of through Humboldt State University's Environmental Health and Safety Department. In total, approximately 35 BDT of feedstock would be stored on-site in nine separate, open piles for use with the torrefier, briquetter, and gasifier. Other equipment operating at the site would include a diesel generator for back-up power supply, a small bobcat loader, a conveyer belt dryer, a portable toilet, and a shipping container to store computers and other supplies. The proposed project would have a water truck, hose and fire extinguishers on site as fire mitigation measures.

Truck traffic at the project site would consist of approximately ten to fifteen large truck loads for mobilization and demobilization of equipment and approximately ten large truck loads for the feedstock deliveries. The truck traffic associated with the proposed project is not expected to be a significant increase beyond existing truck traffic in the area. All permit requirements would be met through existing permits held by the landowner that cover activities at the forest operations site. The North Coast Unified Air Quality Management District determined that an air permit for emissions generated by the torrefier, the gasifier and the diesel generator would not be required. The North Coast Regional Water Quality Control Board has been informed of the scope and schedule for the project and has determined that no permit would be required. Noise-generating activities would be conducted at an established industrial (non-residential) site or at a timber operations site. Noise levels would not exceed those produced by existing industrial and forestry operations at these locations.

There are no occurrences of sensitive plants known within the vicinity of the project site. There are two historic osprey nests within 0.25 miles of the site; however, the project would occur near the end of the nesting period, and the only disturbance would be due to noise which, as stated above, would remain at or below the levels of existing operations. The project would be located within the Coastal Zone. The proposed projects activities would occur only in previously disturbed areas directly adjacent to existing road ways, would not require ground disturbance and would be temporary in nature; therefore, the proposed project is not expected to adversely affect threatened or endangered species, migratory birds, coastal zones, or wetlands.

Based on review of the project information and the above analysis, DOE has determined that Subtasks 3.4 and 3.6 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," 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:

Subtask 4.6 - Evaluate impacts on forest soils

This restriction does not preclude you from:

Subtask 3.4 - Scale up unit, and field deployment and testing

Subtask 3.6 - Operate a briquetting unit

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.

Note to Specialist :

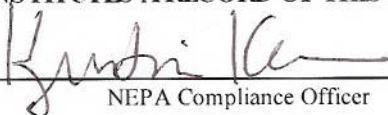
Bioenergy Technologies Office

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

NEPA review completed by Logan Sholar, 5/13/15

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

NEPA Compliance Officer Signature:

  
NEPA Compliance Officer

Date:

5/18/2015

**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:

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Field Office Manager

Date:

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