PMC-ND
(1.08.09.13)

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

RECIPIENT: Forest Concepts, LLC **STATE:** WA

PROJECT TITLE : Improved biomass feedstock materials handling and feeding engineering data sets, design methods, and modeling/simulation tools

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0001689	DE-EE0008254	GFO-0008254-001	GO8254

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.

Rationale for determination:

The U.S. Department of Energy (DOE) is proposing to provide federal funding to Forest Concepts, LLC to design, develop, and test simulation and modeling software products alongside new laboratory equipment and protocols. This work is aimed at contributing to the operation of reliable, cost effective, continuous feeding of biomass feedstocks into various reactors typical of integrated biorefineries.

The proposed project would involve data analysis, computer modeling, laboratory research and development (R&D), and pilot-scale validation. Activities associated with R&D tasks would include: preparation and characterization of test quantities of biomass feedstocks associated with the feeding systems being modeled; development of preliminary engineering methods for improved feedstock handling; design and construction of lab-sized equipment prototypes including physical/mechanical property testers with various sample capacities; and model validation experiments using data generated at an existing research research and development firm focused on producing energy through next generation pyrolysis of biomass. Project activities occurring at Forest Concepts (Auburn, WA) would include feedstock preparation and characterization, equipment fabrication, and the development of engineering methods and laboratory protocols to generate data for modeling. The prepared feedstocks would be processed through the existing pyrolyzer at collaborator Amaron Energy (Salt Lake City, UT) using the materials handling system (equipment and methods) developed by Forest Concepts as described above. Data analysis and various computer modeling efforts based on the data generated by this R&D work would be undertaken by subrecipients Pennsylvania State University (State College, PA) and the Consortium for Research on Renewable Industrial Materials (CORRIM) at University of Washington (Seattle, WA).

Proposed R&D activities at Forest Concepts would involve processing woody biomass and corn stover using an existing rotary shear and hammermill at the recipient's purpose-built facility. With more than 4 years' experience using such equipment to process biomass, Forest Concepts has developed comprehensive safety protocols to include employee training, protective gear and engineering controls. A dust control system is used to mitigate any health related issues. For initial laboratory testing purposes, Forest Concepts would produce approximately 65 odkg (oven-dry weight of wood in kilograms) of multiple sizes and formats of commercially available woody biomass (e.g. plantation poplar chips) and corn stover. For validation experiments with Amaron Energy's equipment, Forest Concepts would produce approximately 3 od Mg (oven-dried tons) of 6.4mm rotary sheared and screened woody biomass materials and an equal amount of 6.4mm hammermilled and screened woody biomass material.

These materials would be shipped to Amaron Energy's dedicated R&D facility for a verification case study involving the collection of data from actual feedstock handling infeed and outfeed unit operations. Biomass materials would be processed through existing pyrolysis equipment, producing approximately 4,000 lbs of biochar and approximately 600 gal of bio-oil. The quantities and types of materials that would be used and produced by the proposed project would be in line with current research activities at this location. All dust and fines generated by processing woody biomass and corn stover would be captured and placed in containers for agricultural/landscape uses. Since the proposed validation runs using Amaron Energy's equipment are small scale, there would be minimal emissions of syngas and particulates. Project participants would follow established health and safety protocols and procedures for biomass processing, and the bio-oil and biochar produced along with process emissions would be managed in accordance with local, state and federal environmental regulations.

All project-related work would occur in research facilities that were previously developed for the types of activities being proposed; therefore, no adverse impacts to sensitive resources are expected as a result of the proposed activities at these locations. No change in the use, mission or operation of existing facilities would arise out of these efforts. Forest Concepts and subrecipients have all applicable permits in place, and would not need additional permits, licenses or authorizations for the proposed activities. At the conclusion of the proposed project, no decommissioning of equipment would be necessary.

Based on the review of the proposal, DOE has determined the proposal fits within the class of action(s) and the integral elements of Appendix B to Subpart D of 10 CFR 1021 outlined in the DOE categorical exclusion(s) selected above. DOE has also determined that: (1) there are no extraordinary circumstances (as defined by 10 CFR 1021.410 (2)) related to the proposal that may affect the significance of the environmental effects of the proposal; (2) the proposal has not been segmented to meet the definition of a categorical exclusion; and (3) the proposal is not connected to other actions with potentially significant impacts, related to other proposals with cumulatively significant actions, or an improper interim action. This proposal 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 the Recipient intends to make changes to the scope or objective of this project, the Recipient is required to contact the Project Officer, identified in Block 15 of the Assistance Agreement before proceeding. The Recipient must receive notification of approval from the DOE Contracting Officer prior to commencing with work beyond that currently approved. If the Recipient moves forward with activities that are not authorized for Federal funding by the DOE Contracting Officer in advance of a final NEPA decision, the Recipient is 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 does not require a tailored NEPA Provision.
NEPA review completed by Whitney Doss, 1/18/2018

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature: Electronically Signed By: Casey Strickland Date: 1/19/2018

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