

PMC-EF2a

(2.04.02)

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

**RECIPIENT:**Colorado State University**STATE:** CO

PROJECT TITLE : Achieving Tier 4 Emissions and Efficiency in Biomass Cookstoves

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0000709	DE-EE0006086	GFO-0006086-001	

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.

Rational for determination:

The U.S. Department of Energy (DOE) is proposing to provide federal funding to Colorado State University's (CSU) Engines and Energy Conversion Laboratory (EECL) to advance cookstove development. The proposed project seeks to better understand the physics associated with combustion, emission formation, and heat transfer in the fuel bed. It would work to understand the chemically reacting flow field above the fuel bed in a forced-air semi-gasifier cookstove and develop computational models of these regions to assist in stove design. DOE funding would be used for three phases; the study of the physics of cookstoves, the development of a computational fluid dynamic (CFD) model of the processes involved; and application of this information to design and distribute a more efficient cookstove prototype.

Work would be completed in a laboratory setting with some testing and prototype demonstration in India. The first two prototypes would undergo detailed laboratory testing to ensure that the design is capable of achieving Tier 4 emissions standards. The second and third prototypes would also undergo lab testing in Colorado to ensure that the product meets customer needs. The final prototype would be demonstrated in India.

All laboratory work would be completed at EECL located at 430 North College Ave., Fort Collins, Colorado 80524. EECL complies with standard safety procedures and all processes and procedures are monitored by the Environmental Health and Safety Department (EHS). The laboratory has all applicable permits in place to conduct research. All handling and disposal of gases, chemicals, and liquid effluents would be executed by EHS personnel who comply with appropriate regulations of OSHA. Any hazardous waste would be handled and disposed of by the Environmental Health Services Hazardous Waste Division (EHSWHD).

Field testing would occur in India. The prototype of the stove is expected to be approximately 18 in. in diameter and 18 in. tall. The stove would be run for an hour and burn approximately 1 kg of wood (2.2 lbs). The total mass emissions of particulate matter (PM) would be below 1500mg, and total mass emissions of carbon monoxide (CO) would be below 20gm per test. Due to the short duration of field testing and demonstration and the small scale of the proposed project, DOE has determined the demonstration activities involving the cookstove would not have adverse impacts to the environment.

