

PMC-ND
(1.08.09.13)

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



RECIPIENT: ISB-Marketing

STATE: ID

PROJECT TITLE: Automated Wood Stove UFEC23

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0002029	DE-EE0008914	GFO-0008914-001	GO8914

Based on my review of the information concerning the proposed action, as NEPA Compliance Officer (authorized under DOE Policy 451.1), 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.

Rationale for determination:

The U.S. Department of Energy (DOE) is proposing to provide federal funding to ISB Marketing to develop and test a novel, automated wood burning stove. The stove would be developed with software to limit emissions levels, regardless of the loading method used. Pilot versions of the stove would be developed and tested in laboratory settings. Units would then be developed for consumer testing, incorporating the results from previous performance tests. Consumer testing would be undertaken for a period of 4 – 6 months.

All project activities would be coordinated by ISB Marketing (Belleville, IL). ISB Marketing would also participate in data collection and analysis activities. Development, fabrication, and testing activities would be performed by Stove Builder International (SBI), at its facilities in Saint-Augustin-de-Desmaures, Quebec, Canada, and by Empire Comfort Systems (ECS) at its laboratory in Belleville, IL. Both locations are purpose-built manufacturing facilities that regularly perform work similar in nature to that included in the scope of this project. Development, testing, and fabrication would occur in an iterated fashion, with various series of stoves developed, tested and then used to inform the development and testing of the subsequent series. Over the course of the project, approximately 40 stoves would be fabricated for testing. Of these, 14 would be used for laboratory-scale pilot testing and 26 would be used for consumer testing.

Specific project activities to be performed are as follows:

Task 1: Baseline Verification – This task would consist of an initial demonstration test on an existing baseline stove. The test run would be performed in coordination with DOE at SBI's facilities in Saint-Augustin-de-Desmaures, Quebec, Canada.

Task 2: Market Analysis and Concept Design – This task would focus on market analysis, concept design/development, and initial preparations for stove testing. Market analysis would include cost modeling, customer surveys, and the development of a value proposition document and features listing.

Concept development would consist of computer modeling/simulations, machine learning algorithm development, prototype fabrication, and physical modifications to prototypes. Three (3) pilot stoves would be fabricated by SBI during this period.

To prepare for stove testing in Task 3, ECS' laboratory facility would be modified to enable emissions testing. Specifically, a closed room would be established for testing, measuring approximately 10 ft. x 10 ft. x 9 ft. The room would be fitted with a dilution tunnel for sampling of exhaust gases. This would entail the installation of indoor piping, an exhaust fan, and associated testing equipment (e.g. support platforms, measurement equipment, etc.).

Task 3: Stove Testing and Certification – This task would consist of iterated prototype development, fabrication, and testing. Two series of prototypes (Alpha 1 and Alpha 2, consisting of 4 stoves in each series) would be fabricated and subjected to performance testing (e.g. burn rate, moisture content, and load density). The Alpha 2 series prototypes would then be used for emissions and safety certification testing. Certification would be performed by a qualified, independent laboratory. Reliability testing would then be performed on the Alpha 2 series after certification.

Task 4: Prototype Production Adjustment for 26 Units – This task would consist of the fabrication and testing of a prototype stove series (Beta series – 3 stoves), followed by the production of twenty-six (26) test units for consumer testing. The Beta series would be fabricated and tested at SBI's facility. Performance testing would inform fabrication of the consumer testing units. Once fabricated, noise testing would be performed by SBI on one of the Beta units prior to shipping. Noise testing would require minor modifications to SBI's facility

Fabrication and assembly of the consumer testing units would be performed primarily at ECS' facility, with some specialized parts fabrication potentially occurring at SBI's facility. An SBI employee would provide welding training to ECS personnel. A closed room within the facility would be fitted with insulation and a chimney with an exhaust hood. Electrical connections would also be established.

One (1) consumer testing unit would be used for physical testing. This test unit would be sent to SBI to perform the testing. The other 25 units would be installed at select customer residences. Participants would be selected in coordination with stove dealer/installation partners. Participants would be selected from a pool of existing customers who would be surveyed to determine if they meet ISB's criteria for the test. Once selected, ISB would coordinate with participants before installation work and relevant agreements/authorizations would be obtained.

Exact locations for consumer testing would be determined after the project has been initiated. In general terms though, residences would be selected in the areas in and around the province of Quebec, Canada, St-Louis, MO, and the North-Eastern region of the U.S. ISB Marketing would be restricted from selecting any residence for installation work that is more than fifty (50) years old. This would ensure that no residence would be selected that is eligible for listing with the National Register of Historic Places (NRHP). Accordingly, DOE has determined that the project would not have the potential to affect historic properties.

Installation work would be performed by qualified third-party installers. Retrofits and modifications may be performed to accommodate the installations. DOE funding would not be used for any installation work. Participants would be selected from the third-party installers' existing base. Upon completion of the installation, participants would be surveyed regarding stove performance. Site visits would be conducted periodically during the 4 – 6 month testing period.

All fabrication and testing activities performed throughout the project would involve the use and handling of high powered equipment with moving parts and machinery operating at high temperatures. All activities would be performed in controlled, laboratory/manufacturing environments that regularly perform work similar in nature to that included in the scope of the project. Potential risks would be mitigated through adherence to established corporate health and safety policies and procedures. Protocols would include personnel training, the use of personal protective

equipment, monitoring, and engineering controls. ISB, SBI, and ECS would observe all applicable Federal, state, and local health, safety, and environmental regulations.

No other physical modifications to ECS or SBI's facilities would be performed, other than those described in this review. Likewise, no construction of new facilities, ground disturbing activities, or changes to the use, mission, or operation of existing facilities would be required. No additional permits or authorizations would be needed for the completion of project activities.

NEPA PROVISION

DOE has made a final NEPA determination.

Include the following condition in the financial assistance agreement:

ISB Marketing is restricted from performing any installation work at residences that are more than fifty (50) years old at the time that installation work is to be performed.

Notes:

Bioenergy Technologies Office
This NEPA determination requires a tailored NEPA provision.
Review completed by Jonathan Hartman, 05/28/2020

FOR CATEGORICAL EXCLUSION DETERMINATIONS

The proposed action (or the part of the proposal defined in the Rationale above) fits within a class of actions that is listed in Appendix A or B to 10 CFR Part 1021, Subpart D. To fit within the classes of actions listed in 10 CFR Part 1021, Subpart D, Appendix B, a proposal must be one that would not: (1) threaten a violation of applicable statutory, regulatory, or permit requirements for environment, safety, and health, or similar requirements of DOE or Executive Orders; (2) require siting and construction or major expansion of waste storage, disposal, recovery, or treatment facilities (including incinerators), but the proposal may include categorically excluded waste storage, disposal, recovery, or treatment actions or facilities; (3) disturb hazardous substances, pollutants, contaminants, or CERCLA-excluded petroleum and natural gas products that preexist in the environment such that there would be uncontrolled or unpermitted releases; (4) have the potential to cause significant impacts on environmentally sensitive resources, including, but not limited to, those listed in paragraph B(4) of 10 CFR Part 1021, Subpart D, Appendix B; (5) involve genetically engineered organisms, synthetic biology, governmentally designated noxious weeds, or invasive species, unless the proposed activity would be contained or confined in a manner designed and operated to prevent unauthorized release into the environment and conducted in accordance with applicable requirements, such as those listed in paragraph B(5) of 10 CFR Part 1021, Subpart D, Appendix B.

There are no extraordinary circumstances related to the proposed action that may affect the significance of the environmental effects of the proposal.

The proposed action has not been segmented to meet the definition of a categorical exclusion. This proposal is not connected to other actions with potentially significant impacts (40 CFR 1508.25(a)(1)), is not related to other actions with individually insignificant but cumulatively significant impacts (40 CFR 1508.27(b)(7)), and is not precluded by 40 CFR 1506.1 or 10 CFR 1021.211 concerning limitations on actions during preparation of an environmental impact statement.

DOE has determined that work to be carried out outside of the United States, its territories and possessions is exempt from further review pursuant to Section 5.1.1 of the DOE Final Guidelines for Implementation of Executive Order 12114; "Environmental Effects Abroad of Major Federal Actions."

The proposed action is categorically excluded from further NEPA review.

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature:



Casey Strickland

NEPA Compliance Officer

Date:

5/28/2020

FIELD OFFICE MANAGER DETERMINATION

- Field Office Manager review not required
- Field Office Manager review required

BASED ON MY REVIEW I CONCUR WITH THE DETERMINATION OF THE NCO :

Field Office Manager's Signature: _____
Field Office Manager

Date: _____