

PMC-ND

(1.08.09.13)

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



RECIPIENT: Saint-Gobain

STATE: MA

PROJECT TITLE: Advanced Techniques for Energy Input Reduction in Gypsum Wallboard Drying

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0002252	DE-EE0009394	GFO-0009394-001	G09394

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.
- B1.31 Installation or relocation of machinery and equipment** Installation or relocation and operation of machinery and equipment (including, but not limited to, laboratory equipment, electronic hardware, manufacturing machinery, maintenance equipment, and health and safety equipment), provided that uses of the installed or relocated items are consistent with the general missions of the receiving structure. Covered actions include modifications to an existing building, within or contiguous to a previously disturbed or developed area, that are necessary for equipment installation and relocation. Such modifications would not appreciably increase the footprint or height of the existing building or have the potential to cause significant changes to the type and magnitude of environmental impacts.

Rationale for determination:

The U.S. Department of Energy (DOE) is proposing to provide funding to Saint-Gobain to achieve energy savings in the gypsum board drying process by using complementary technologies. Specifically, microwave (MW) technology would be applied as the driving energy source for calcination.

The proposed project would be completed over three Budget Periods (BPs), with a Go/No-Go decision point in between each BP. BP1 would focus on modeling, milling, and rheology characterization with BP2 efforts directed towards grain scale MW calcination and particle size distribution optimization. BP 3 activities would work to scale-up system performance and optimization. This NEPA review is applicable to all three BPs.

Activities at Saint-Gobain's laboratory facility in Northborough, MA would include crushing gypsum particles and determining their particle size distribution, measuring rheological parameters of stucco slurries and slurries of model materials, and calcining gypsum particles using a dedicated radio frequency heating system. Characterization of calcined particles would be completed using standard analytical techniques such as scanning electron microscopy, differential scanning calorimetry and inductively coupled plasma spectroscopy. Additional project management and technical support would be provided from Saint-Gobain's office at the Malvern Innovation Center in Malvern, PA. Georgia Tech Research Corporation in Atlanta, GA would complete theoretical and numerical modeling of gypsum calcination, along with actual calcination of gypsum particles with a laboratory scale microwave to determine the temperature and moisture content of gypsum.

Saint-Gobain's Northborough, MA facility would require electrical improvements including a new transformer, electrical wiring, and receptacles to accommodate the energy supply requirements for the installation of a large microwave oven. Additionally, either a condensation unit would be installed in the laboratory or an exhaust stack would be added to the roof of the building, although not visible from the public right-of-way, to remove water vapor. The existing test

rings at Georgia Tech Research Corporation facility could require some minor modifications, but no building modifications. No additional permits or authorizations would be required for any of these modifications at either location.

Proposed project activities would involve the use and handling of gypsum material and powered laboratory equipment operating at high temperatures. All such handling would be performed in controlled laboratory environment. Potential hazards would be mitigated through adherence to established institutional health and safety policies and procedures. Protocols would include employee training, the use of personal protective equipment, engineering controls, monitoring, and internal assessments. All waste materials would be stored in appropriate waste containers and disposed of by qualified waste management service providers. Saint-Gobain and their project partner would observe all applicable Federal, state, and local health, safety, and environmental regulations.

NEPA PROVISION

DOE has made a final NEPA determination.

Notes:

Advanced Manufacturing Office

This NEPA determination does not require a tailored NEPA Provision
NEPA review completed by Diana Heyder, 5/14/2021

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.

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 Date: 5/17/2021
NEPA Compliance Officer

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: _____ Date: _____
Field Office Manager