

PMC-ND

(1.08.09.13)

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

**RECIPIENT:** University at Buffalo, The State University of New York**STATE:** NY

PROJECT TITLE: Scalable and Cost-Effective Roll-to-Roll Additive Manufacturing of Highly Durable and Thermal Insulating Silica-Carbon Aerogel

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0001825	DE-EE0008675	GFO-0008675-001	GO8675

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.

Rationale for determination:

The U.S. Department of Energy (DOE) is proposing to provide funding to University at Buffalo, State University of New York (SUNY Buffalo) to design, develop, fabricate, and test novel silica aerogel thermal insulation materials produced via roll-to-roll (R2R) manufacturing and ambient pressure-drying (APD) processes. The project would be divided into three Budget Periods (BPs), with a Go/No-Go Decision Point in between each BP.

Proposed project activities would include fabrication of silica gel precursors, development of APD, surface treatment, and R2R manufacturing processes, and completion of a tech-to-market report. A screw-driven extrusion based printing system would be developed with custom hardware and software for fabrication of the silica aerogel.

SUNY Buffalo would oversee all project activities and would perform design work, process development, small-scale fabrication and testing at a dedicated laboratory facility at its campus in Buffalo, NY. Larger-scale fabrication would be performed at an established manufacturing facility operated by Unifrax, I LLC (Unifrax) in Tonawanda, NY. The scale of aerogel composite panels produced would increase over the course of the project, with the final prototypes measuring approximately 15'x17" and weighing approximately 1.5kg.

SUNY Buffalo would modify a belt conveyor that forms part of a roll-to-roll printing device within its facility in order to enable rapid printing. No change in the use, mission, or operation of existing facilities would be required as part of this project. Similarly, no additional permits would be required in order to conduct any of the work activities.

Project activities would involve the use and handling of various industrial chemicals. All such handling would be performed in laboratory environments under fume hoods. Any risks associated with handling these materials would be mitigated through established health and safety policies and procedures. Protocols would include personnel training, the use of personal protective equipment, engineering controls, monitoring and internal assessments. SUNY Buffalo and Unifrax would adhere to all applicable Federal, state, and local health, safety, and environmental laws and regulations.

NEPA PROVISION

DOE has made a final NEPA determination.

Notes:

[Building Technologies Office](#)

[This NEPA determination does not require a tailored NEPA provision.](#)

[Review completed by Jonathan Hartman on 3/22/2019](#)

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

NEPA Compliance Officer

Date: 3/25/2019

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: _____