

PMC-ND

(1.08.09.13)

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

**RECIPIENT:** BrightSpot Automation LLC**STATE:** MA

PROJECT TITLE: Improving solar panel durability through novel panel designs and advanced manufacturing equipment

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0001654	DE-EE0008152	GFO-0008152-002	GO8152

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.)
- 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.
- 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 BrightSpot Automation LLC to conduct a fundamental study on the nature of cracked cells in crystalline silicon solar photovoltaic (PV) panels and develop more durable modules in which the cells are less likely to crack or, if cracks do occur, less likely to contribute to power loss. The anticipated outcome would be a set of improved panel designs and materials, prototype advanced module manufacturing equipment, and recommendations for improvements to module certification tests and testing specifications.

A previous NEPA Determination (GFO-0008152-001; CXs A9, B3.6; 08/18/2017) reviewed Tasks 1.1-1.5, Task 2.1, and Task 2.5. GFO-0008152-001 conditioned Tasks 2.2-2.4 on further NEPA review of outdoor testing locations, which had not yet been selected. All field sites have subsequently been identified; therefore, this final NEPA Determination is to review Tasks 2.2-2.4.

Task 2.2 would involve the design and fabrication of prototype hardware and solar PV equipment alongside the development of manufacturing and testing methods. These activities would take place in-lab at BrightSpot Automation (Westford, MA) and D2Solar (San Jose, CA). Task 2.3 would involve both in-lab and real world field testing of hardware and equipment. Field testing would be conducted using outdoor PV test arrays at BrightSpot Automation (Westford, MA) in addition to the Florida Solar Energy Center (FSEC; Cocoa, FL). Activities at

BrightSpot Automation would include the installation of a small (8 module) ballasted array within a dedicated PV test site. At FSEC, activities would be limited to retro-fitting several modules in an existing array with approximately (~) 4 to 10 hardware devices (~1 meter long plastic rails) developed in earlier project tasks. Task 2.4 would involve additional small-scale experiments at D2Solar to further develop module testing methods.

The proposed project would not involve the use or handling of any hazardous materials. Potential electric power hazards would be mitigated by following industry health and safety standards and protocols already in place at each testing location. Project activities would use or consume small quantities of standard office and laboratory supplies as well as non-hazardous solar module fabrication materials (e.g. commercially-available solar cells, EVA, Tedlar, glass). Any waste materials generated by the project would be recycled or disposed of via conventional recycling or waste removal services. At the conclusion of field work, installed hardware and equipment would either be removed from the test sites or remain in place for future research.

All project activities would occur at previously developed research and development (R&D) or commercial facilities that are purpose-built for the type of activities being proposed. No physical modifications, ground disturbance, new permits, additional licenses and/or authorizations would be necessary. No change in the use, mission or operation of existing facilities would arise out of this effort.

NEPA PROVISION

DOE has made a final NEPA determination.

Notes:

Solar Energy Technologies Office

This NEPA determination does not require a tailored NEPA Provision.

NEPA review completed by Whitney Doss Donoghue, 5/22/2020

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.

The proposed action is categorically excluded from further NEPA review.

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature:

 **Kristin Kerwin**
NEPA Compliance Officer

Date: 5/27/2020

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: _____