

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



**RECIPIENT:** Massachusetts Institute of Technology

**STATE:** MA

**PROJECT TITLE:** Center for Co-Design of Durable, Reproducible, and Efficient Perovskite Tandems, 2582-1561

<b>Funding Opportunity Announcement Number</b>	<b>Procurement Instrument Number</b>	<b>NEPA Control Number</b>	<b>CID Number</b>
DE-FOA-0002582	DE-EE0010503	GFO-0010503-001	

**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.

**B3.15 Small-scale indoor research and development projects using nanoscale materials**

Siting, construction, modification, operation, and decommissioning of facilities for indoor small-scale research and development projects and small-scale pilot projects using nanoscale materials in accordance with applicable requirements (such as engineering, worker safety, procedural, and administrative regulations) necessary to ensure the containment of any hazardous materials. Construction and modification activities would be within or contiguous to a previously disturbed or developed area (where active utilities and currently used roads are readily accessible).

Rationale for determination:

The U.S. Department of Energy (DOE) is proposing to provide federal funding to the Massachusetts Institute of Technology (MIT) to bring together industry and academic partners to design, build, and test commercially relevant tandem solar cells, which combine both silicon and perovskite materials. The project team would research efficient module designs, create manufacturing methods, and perform durability testing.

Proposed project activities include the fabrication of perovskite solar cell films, devices, and modules with ink-jet printing, spin coating, blade coating, and slot-die coating using existing processing capabilities. The materials, cells, and modules would be tested using advanced materials characterization techniques available at MIT (Cambridge, MA) and the laboratory facilities of project participants: CubicPV Inc. (Dallas, TX and Bedford, MA), Verde Technologies (Burlington, VT), Princeton University (Princeton, NJ), and University of California San Diego (La Jolla, CA). The proposed project would culminate in the short-term outdoor testing of mini-module prototypes on the rooftop of CubicPV Inc. (Dallas, TX).

The proposed project would involve the use and handling of research-scale laboratory quantities of various hazardous materials, including metals, solvents, and nanomaterials. Existing university or corporate health and safety policies and procedures would be followed, including employee training, proper protective equipment, engineering controls, monitoring, and internal assessments. All hazardous materials would be managed and disposed of after use in accordance with federal, state, and local environmental regulations.

The facilities in which project work would occur are purpose-built to accommodate the types of activities being proposed. No change in the use or mission of existing facilities would arise out of this effort. The only modifications required to perform project activities would be the installation of new perovskite processing equipment at CubicPV (Bedford, MA) in a space formerly used for silicon processing. The new procedure would be subject to review by

appropriate local permitting authorities to ensure adequate permits are in place for the modified use of this site. DOE does not anticipate any impacts to resources of concern due to the proposed activities of the project.

## NEPA PROVISION

DOE has made a final NEPA determination.

Notes:

Solar Energy Technology Office (SETO)  
Review completed by Whitney Donoghue on 06/20/2023.

## 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: \_\_\_\_\_

 Electronically Signed By: **Andrew Montano**  
NEPA Compliance Officer

Date: 6/26/2023

## 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: \_\_\_\_\_