

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



RECIPIENT: Tandem PV, Inc

STATE: CA

PROJECT TITLE : STACKED: Stability and Characterization of Hole-Transporting Layers Key to Enabling Outdoor Durability

Notice of Funding Opportunity Number
DE-FOA-0003058

Procurement Instrument Number
DE-EE0011422

NEPA Control Number
GFO-0011422-002

CID Number
GO11422

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:

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).

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 funding Tandem PV, Inc. to engineer ultraviolet light hardness into critical layers of solar photovoltaic (PV) devices and increase durability under high temperatures. The proposed project would perform enhanced durability testing on tandem perovskite-silicon devices with these new layers to ensure they are stable and retain their high efficiency in outdoor conditions.

A previous NEPA Determination (ND) was written for this award (GFO-0011422-001; 7/9/2024; CXs: A9, B3.15, B5.15), covering all tasks.

This ND is reviewing changes to the scope, including changing the materials exploration for UV blocking layers and changing materials characterization by utilizing spectroscopic methods at a different Tandem PV, Inc. location (Fremont, CA), a different Colorado School of Mines location (Golden, CA), and at University of Colorado, Boulder (Boulder, CO).

Field testing would continue to occur at Tandem PV, Sandia National Laboratory (SNL; Albuquerque NM), and the National Laboratory of the Rockies (NLR; Golden, CO). Although national laboratories field testing is not funded as part of the project, samples from this award and its processes are sent to the national laboratories for field testing and as such, these activities are reviewed in this ND. The national laboratory testing procedures are part of ongoing work that occurs at SNL and NLR. All project activities would be completed in existing, purpose-built facilities. These facilities already carry out similar development, testing, and prototyping activities. All award activities would be carried out within existing facility footprints.

Project workers may be exposed to hazardous materials such as heavy metals, industrial solvents, and chemical synthesis of polymers. All such handling would occur in-lab following proper hazardous material management and disposal practices in accordance with applicable federal, state, and local environmental regulations. Certain aspects of project work may utilize nanoparticulate oxides. The oxides are purchased pre-dissolved in solution and deposited

onto substrates; at no time are the nanoparticles expected to become unbound. Existing health and safety policies and procedures would be followed, including employee training, proper protective equipment, engineering controls, monitoring, and internal assessments.

There would be no ground disturbing activities and no change in the use, mission, or operation of existing facilities.

DOE has considered the scale, duration, and nature of proposed activities to determine potential impacts on resources, including those of an ecological, historical, cultural, and socioeconomic nature. DOE does not anticipate impacts on these resources which would be considered significant or require DOE to consult with other agencies or stakeholders.

Any work proposed to be conducted at a federal facility may be subject to additional NEPA review by the cognizant federal official and must meet the applicable health and safety requirements of the facility.

NEPA PROVISION

DOE has made a final NEPA determination.

Notes:

Solar Energy Technologies Office (SETO)
NEPA review completed by Alex Colling on 06/09/2026.

FOR CATEGORICAL EXCLUSION DETERMINATIONS

The proposal fits within a class of actions that is listed in Appendix B to 10 CFR Part 1021 or Appendix B and C of DOE's NEPA Implementing Procedures (June 30, 2025). To fit within the classes of actions listed in Appendix B to 10CFR Part 1021, or Appendix B of DOE's NEPA Implementing Procedures, a proposal must satisfy the conditions that are integral elements of the classes of actions in Appendix B of both 10 CFR Part 1021 and DOE's NEPA Implementing Procedures.

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.

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: **Nicole Serio**

NEPA Compliance Officer

Date: 6/10/2026

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: _____