

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



RECIPIENT: Rensselaer Polytechnic Institute

STATE: NY

PROJECT TITLE : Tool for Reliability Assessment of Critical Electronics in PV (TRACE-PV)

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0002243	DE-EE0009348	GFO-0009348-002	G09348

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 federal funding to Rensselaer Polytechnic Institute (RPI) to develop and test a tool for performing assessments of electronic components in solar photovoltaic (PV) systems. The tool would consist of software used for forecasting PV degradation, levelized cost of energy, and associated performance metrics. The software would be evaluated utilizing data from existing PV systems and laboratory-based inverter testing.

A previous, final NEPA determination for this award (GFO-0009348-001; CXs A9, B3.6) was completed on 3/16/2021. Since that time, the award has been novated from Clemon University to RPI. The scope of project work remains unchanged due to this novation. Proposed project activities would consist of conceptual design work, computer modeling, component stress testing, PV inverter accelerated life testing, and data analysis. Component stress testing and PV inverter accelerated life testing would be performed utilizing commercial off-the-shelf equipment in laboratory environments. Field data would be acquired from existing solar PV systems operated by project partner Dominion Energy. No new equipment would be installed for field data collection.

The National Renewable Energy Laboratory (Golden, CO) would continue to conduct a portion of testing activities, and field data collection at Dominion Energy's Cayce, SC site would also remain the same as previously defined. The location of certain other remaining project activities would change as follows:

- Design and development activities would primarily occur at RPI's research facility in Troy, NY.
- Component-level stress test and component lifetime modeling work would be performed at Clemson (Charleston, SC) and Purdue University (West Lafayette, IN).

No physical modifications to existing facilities, ground disturbance, or changes to the use, mission, or operation of existing facilities would be required. No additional permits or authorizations would be required. All laboratory-based work would be performed in accordance with established institutional health and safety policies and procedures. RFI and its project partners would observe all applicable Federal, state, and local health, safety, and environmental regulations.

DOE has considered the scale, duration, and nature of the proposed activities in the context of the newly proposed locations to determine potential impacts on sensitive resources, including those of a biological, ecological, 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.

NEPA PROVISION

DOE has made a final NEPA determination.

Notes:

Solar Energy Technologies Office (SETO)
Review completed by Whitney Donoghue on 7/2/2024.

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:



Andrew Montano

NEPA Compliance Officer

Date: 7/9/2024

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: