



U.S. Department of Energy Categorical Exclusion Determination Form

Submit by E-mail

Proposed Action Title: Sharp Labs of America - A High-Efficiency Flat Plate PV with Integrated Micro-CPV Atop a 1-Sun Panel

Program or Field Office: Advanced Research Projects Agency - Energy

Location(s) (City/County/State): Camas, WA; Tucson, AZ

Proposed Action Description:

Funding will support the project team's small-scale, research and development activities to integrate novel optical design, high efficiency concentrating photovoltaic cells (CPV), and bifacial 1-sun solar panels to capture both direct and diffuse sunlight. Specifically, the project team will design and fabricate a micro-CPV flat panel consisting of linear lens array, waveguide array, CPV cell array, 1-sun panel, and collateral wiring. This assembly will be mounted on a commercial 2-axis tracker for outdoor testing. If successful, the technology would result in improvement of overall panel efficiency (>30%) above that of current thin-film or crystalline silicon. Furthermore, sheet configuration enables low cost mass production analogous to that of current LCD panel fabrication, enabling large-scale expansion of the market for an entirely new class of micro-scale CPV solar panels.

Project activities will be conducted at existing facilities that are designed for the applicable activities, and will be conducted in accordance with applicable Federal, State, and local safety and environmental requirements. Outdoor testing will take place in a previously developed area at Sharp's and University of Arizona's laboratory facilities, in Camas, WA and Tucson, AZ, respectively. Testing will be performed in accordance with applicable local land use requirements in the proposed project area and will incorporate appropriate control technologies and best management practices.

Categorical Exclusion(s) Applied:

B3.6 - Small-scale research and development, laboratory operations, and pilot projects

B5.15 - Small-scale renewable energy research and development and pilot projects

For the complete DOE National Environmental Policy Act regulations regarding categorical exclusions, including the full text of each categorical exclusion, see Subpart D of 10 CFR Part 1021.

Regulatory Requirements in 10 CFR 1021.410(b): (See full text in regulation)

The proposal 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 proposal that may affect the significance of the environmental effects of the proposal.

The proposal 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.

Based on my review of the proposed action, as NEPA Compliance Officer (as authorized under DOE Order 451.1B), I have determined that the proposed action fits within the specified class(es) of action, the other regulatory requirements set forth above are met, and the proposed action is hereby categorically excluded from further NEPA review.

NEPA Compliance Officer:

Date Determined: 11/10/2015