



U.S. Department of Energy

Categorical Exclusion Determination Form

Proposed Action Title: Xscape Photonics -- Scalable Combs for Accelerators with Photonics Escape for eXascale Computing and Beyond (SCAPE-X)

Program or Field Office: Advanced Research Projects Agency - Energy

Location(s) (City/County/State): Santa Clara, California; Fort Lee, New Jersey

Proposed Action Description:

Funding will support the project team's small-scale research and development of an integrated photonics platform that replaces hundreds of discrete lasers with a single multi-wavelength comb laser source for use in the scalability of artificial intelligence (AI) and high-performance computing (HPC) systems. Specifically, the project team will (1) test and validate a first generation of comb laser design to meet performance metrics; (2) refine, develop, test, and validate a second generation comb laser design to meet performance metrics; (3) procure platform components, test and validate operation for durability and performance; (4) design and assemble components into full integrated system; (5) test and validate final system to meet performance metrics; and (6) conduct a techno-economic analysis and life cycle assessment for next phase development. If successful, this project will result in a laser-based photonics platform that achieves an order-of-magnitude improvement in throughput per device and leverages existing commercial semiconductor foundries for immediate production, enabling massive bandwidth scaling while minimizing energy consumption and cost, ultimately reducing dependence on foreign energy, thereby increasing U.S. energy security, and strengthening domestic high-tech manufacturing. Project activities will be conducted at existing facilities at Xscape Photonics (Santa Clara, CA and Fort Lee, NJ) designed for the applicable activities. This project fits within the class of actions identified under the DOE Categorical Exclusions identified below. This assessment was based on a review of the proposed scope of work and the potential environmental impacts of the project. The project team has certified that project tasks will be conducted in accordance with established safety and materials/waste management protocols and pursuant to applicable Federal, State, and local regulatory requirements. Xscape Photonics has not obtained all necessary permits and approvals applicable to their proposed action, and is prohibited from commencing applicable project work until those permits are obtained. Per the terms of the award, a permits certification, and, if necessary, an amended NEPA Determination, are required prior to the conduct of applicable project work.

Categorical Exclusion(s) Applied:

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

For the DOE procedures regarding categorical exclusions, including the full text of each categorical exclusion, see 10 CFR 1021.102 and Appendix B to [10 CFR Part 1021](#), and also Section 5.4 (Applying one or more categorical exclusions to a proposal) and Appendices B and C of [DOE's National Environmental Policy Act Implementing Procedures](#) (June 30, 2025).

Requirements and guidance in 10 CFR 1021.102 and DOE's NEPA Implementing Procedures: (See full text in regulation and in Implementing Procedures)

- ☒ 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 10 CFR 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 proposal that may affect the significance of the environmental effects of the proposal. DOE or an applicant may modify the proposal to avoid reasonably foreseeable adverse significant effects such that the categorical exclusion would apply.
- ☒ The proposal has not been segmented to meet the definition of a categorical exclusion.

[Note: For proposals that fit within the categorical exclusions listed in Appendix C of DOE's NEPA Implementing Procedures, see DOE's notice of adoption for the subject Appendix C categorical exclusion for additional considerations. DOE notices of adoption for other agency categorical exclusions may be found on [DOE's Section 109 webpage](#).]

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

NEPA Compliance Officer: **GEOFFREY
GOODE**

Digitally signed by GEOFFREY
GOODE
Date: 2026.09.01 13:47:23 -04'00'

Date Determined: