

PMC-ND  
(1.08.09.13)

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

**RECIPIENT:** StorEdgeAI**STATE:** WA

**PROJECT TITLE:** Re-thinking solar energy delivery: Non-wire solar-powered energy-carriers, integrated with utility-scale generation, to advance solar adoption to 30% of the total generation before 2030

<b>Funding Opportunity Announcement Number</b>	<b>Procurement Instrument Number</b>	<b>NEPA Control Number</b>	<b>CID Number</b>
DE-FOA-0002243	DE-EE0009331	GFO-0009331-001	

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.

**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 to StorEdgeAI to develop and test a novel solar-powered non-wire energy carrier. The device would be designed to store energy produced by solar photovoltaic (PV) systems. Prototype versions of the energy carrier device would be developed and tested in laboratory settings and outdoors at a dedicated solar farm. The project would be completed over two Budget Periods (BPs), with a Go/No-Go Decision Point in between each BP.

Proposed project activities would consist of data analysis, computer modeling, system requirements/specifications development, component design and development, prototype assembly, and performance testing. StorEdgeAI would coordinate all project activities. Project management, design, and analysis would be performed by StorEdgeAI at its office facilities in Bothell, WA, and Clifton Park, NY. Development, fabrication, and testing of prototype devices would be performed at laboratory facilities operated by project partner Marquette University at its campus in Milwaukee, MN. Power electronics testing and stress testing of electronics would be performed at a laboratory facility operated by project partner NWL in Bordentown, NJ. Outdoor testing would be performed at a dedicated 1.2 MW solar farm operated by NWL, adjacent to its laboratory facility in Bordentown.

Various prototypes of the energy carrier device would be developed over the course of the project. The prototype

devices would consist of power electronics equipment including battery modules, resistors, capacitors, and switch gear. Components would primarily consist of commercial, off-the-shelf hardware, with some custom-built equipment sourced from third-party manufacturers. The assembled devices would measure approximately 13 in x 13 in x 6 in. Various devices would be connected and contained within a custom enclosure for system-level testing. The integrated system would measure approximately 13 in x 13 in x 30 in.

For outdoor performance testing, prototype energy carrier devices would be connected temporarily to existing solar PV equipment. Integrated switchgear would be used to charge/discharge the devices. The prototype devices would be mounted onto existing equipment and would not require any ground disturbance or facility modifications. No additional permits or authorizations would be required. Outdoor performance testing would occur over a period of approximately three (3) months.

The U.S. Fish and Wildlife Service's Information for Planning and Consultation database indicates that there are a number of Endangered Species Act (ESA) listed species and migratory bird species with the potential to be present in the vicinity of the outdoor testing location. However, considering that all outdoor testing would occur within a previously disturbed site location that is currently in use for commercial activities and equipment modifications would not include any ground breaking activities, DOE has determined that the project would have no effect on ESA listed species or designated critical habitats.

Project work would involve the use and handling of powered electronic equipment and lithium-ion batteries. All such handling would occur in controlled laboratory and power generation facilities that develop and test solar devices as part of their regular course of business. Industry-standard best practices would be observed in order to mitigate potential risks. All project facilities are equipped with appropriate safety equipment. StorEdgeAI and its project partners would observe all applicable Federal, state, and local health, safety, and environmental regulations.

## NEPA PROVISION

DOE has made a final NEPA determination.

Notes:

Solar Energy Technologies Office

This NEPA determination does not require a tailored NEPA Provision.

NEPA review completed by Jonathan Hartman, 12/23/2020

## 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:  \_\_\_\_\_  
NEPA Compliance Officer

Date: 12/29/2020

**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: \_\_\_\_\_