

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



RECIPIENT: SolarFlexes LLC

STATE: CT

PROJECT TITLE: Smart, Hardened, Modular PV System for 50-Year Service Life

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0002838	DE-EE0009828	GFO-0009828-002	G09828

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.)
B1.11 Fencing	Installation of fencing, including, but not limited to border marking, that would not have the potential to significantly impede wildlife population movement (including migration) or surface water flow.
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.
B5.16 Solar photovoltaic systems	The installation, modification, operation, and removal of commercially available solar photovoltaic systems located on a building or other structure (such as rooftop, parking lot or facility, and mounted to signage, lighting, gates, or fences), or if located on land, generally comprising less than 10 acres 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 federal funding to SolarFlexes, LLC (SolarFlexes) for the design, development, fabrication, bench testing, and field testing of a modular, prefabricated photovoltaic (PV) array and anchoring system.

A previous NEPA Determination (GFO-0009828-001; A9, B3.11, B3.6; 12/23/2021) was completed for all award activities as defined in the original Statement of Project Objectives. Since that time, the proposed scope of work has expanded to include additional tasks in Budget Period 2 (BP2) as well as a third BP. This NEPA Determination reviews new activities and locations associated with this award, as modified.

Design, development, fabrication, and assembly of 100-kilowatt (kW) prototype PV arrays would occur at SolarFlexes (Hawthorne, CA; Santa Monica, CA; Milford, CT) manufacturing facilities, as well as stakeholder engagement and paper studies. Industry-standard transportation and anchor testing would occur at accredited test lab sites. On-road transportation and field testing of the modular PV array would occur at the National Renewable Energy Laboratory's (NREL; Golden, CO; Arvada, CO) Flatirons Campus. The installation and field testing of two approximately 350 kW prototype arrays would occur at two Mississippi Army National Guard (MSARNG) sites (Tupelo, MS; Gulfport, MS).

Newly proposed project activities would include the usage of cadmium telluride- (CdTe) and silicon- (Si) based PV models, strain gauge and accelerometer testing, extensive anchor testing at NREL, the development of a health monitoring algorithm network, and expanded field testing. Field testing activities would include the following:

1. Installation of a 20-kW prefabricated test array using Si- and CdTe- based models
2. Installation of a 40-kW CdTe-based PV models at MSARNG Tupelo
3. Installation of a 40-kW CdTe-based PV models at MSARNG Gulfport

4. Installation of a 350-kW CdTe-based PV pilot project at MSARNG Tupelo
5. Installation of a 350-kW CdTe-based PV pilot project at MSARNG Gulfport

The installation at NREL would require the installation of anchoring foundations with a plot footprint of 100x100 feet (ft). The area would be a site that is currently in use with prototype PV systems for other ongoing experiments.

Installation at MSARNG Tupelo would involve an anchoring I-beam measuring 4x6 inches (in) and installed up to 7 ft deep, 18 box conduits installed up to 3 ft deep, 350 ft of cable trenched at up to 3 ft deep, 350 ft of chain link fence with an access gate and posts up to 2 ft deep, an 8x8 ft concrete pad poured 2-6 in deep at the northeast corner of the array, an 100 ft overhead cable for utility interconnection, and a utility pole installed up to 6 ft deep. String inverters, transformers, combiner boxes, re-combiner boxes, breakers, and switches would be installed on poles placed during the award activities or on the concrete pad.

Installation at MSARNG Gulfport would involve an anchoring an I-beam measuring 4x6 in and installed up to 15 ft deep, 18 combiner boxes installed up to 3 ft deep, 750 ft of cable trenched at up to 3 ft deep, and 500 ft of chain link fence with an access gate and posts up to 2 ft deep. String inverters, underground wiring, combiners, re-combiners, breakers, and switches would be installed on poles placed during the award activities or on the preexisting concrete pad. The PV array installed at this site would be tied into an existing pad-mount transformer.

After installation is completed complete, subsequent BP3 activities would include demonstrating the technology in an operational environment, the health monitoring system, the survivability of the trackers, and validating cost assumptions.

Award activities would include potential hazards caused by the fabrication and installation of the PV arrays, including heavy and industrial equipment. High voltage electrical connections would be made, and OSHA safety protocols would be followed. All operators of equipment would have proper certification and proper protective equipment would be provided. Each field test would comply with all NREL and MSARNG environmental, health, and safety requirements and any required permits would be obtained prior to beginning installation. All wastes would be handled following appropriate methods and disposed of in accordance with applicable regulations.

The U.S. Fish and Wildlife Service Endangered Species Program website (IPaC) identifies several federally listed threatened or endangered species, including the Northern Long-eared Bat, Eastern Black Rail, Piping Plover, Rufa Red Knot, Gopher Tortoise, Monarch Butterfly, Price's Potato-bean and Louisiana Quillwort, which are believed to occur in the project areas, as well as more than twenty migratory bird species of conservation concern. These species may be present seasonally within the project areas. However, because award activities are limited to actively managed fields within heavily trafficked transportation sites with no remaining natural features, DOE has determined that no adverse impacts to species of concern are to be expected as a result of the proposed activities at these locations.

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.

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.

NEPA PROVISION

DOE has made a final NEPA determination.

Notes:

Solar Energy Technologies Office (SETO)
NEPA review completed by Alex Colling on 02/29/2024.

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: 3/12/2024

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: _____