PMC-ND

(1.08.09.13)

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

RECIPIENT: NREL **STATE:** CO

PROJECT TITLE: NREL-22-013 Agrivoltaics research across the U.S. – Arizona, Georgia, Massachusetts, and Oregon

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
	DE-AC36-08GO28308	NREL-22-013	GO28308

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.)
A11 Technical advice and assistance to organizations	Technical advice and planning assistance to international, national, state, and local organizations.
B3.1 Site characterization and environmental monitoring	Site characterization and environmental monitoring (including, but not limited to, siting, construction, modification, operation, and dismantlement and removal or otherwise proper closure (such as of a well) of characterization and monitoring devices, and siting, construction, and associated operation of a small-scale laboratory building or renovation of a room in an existing building for sample analysis). Such activities would be designed in conformance with applicable requirements and use best management practices to limit the potential effects of any resultant ground disturbance. Covered activities include, but are not limited to, site characterization and environmental monitoring under CERCLA and RCRA. (This class of actions excludes activities in aquatic environments. See B3.16 of this appendix for such activities.) Specific activities include, but are not limited to: (a) Geological, geophysical (such as gravity, magnetic, electrical, seismic, radar, and temperature gradient), geochemical, and engineering surveys and mapping, and the establishment of survey marks. Seismic techniques would not include large-scale reflection or refraction testing; (b) Installation and operation of field instruments (such as stream-gauging stations or flow-measuring devices, telemetry systems, geochemical monitoring tools, and geophysical exploration tools); (c) Drilling of wells for sampling or monitoring of groundwater or the vadose (unsaturated) zone, well logging, and installation of water-level recording devices in wells; (d) Aquifer and underground reservoir response testing; (e) Installation and operation of ambient air monitoring equipment; (f) Sampling and characterization of water, soil, rock, or contaminants (such as drilling using truck- or mobile-scale equipment, and modification, use, and plugging of boreholes); (g) Sampling and characterization of water effluents, air emissions, or solid waste streams; (h) Installation and operation of meteorological towers and associated activities (such as assessment of potential wind energy resources); (i) Sampling of flora or fauna; and (j) Archeological, historic, and cultural resource identification in compliance with 36 CFR part 800 and 43 CFR part 7.

Rationale for determination:

The U.S. Department of Energy's (DOE) Solar Energy Technology Office (SETO) is proposing to provide funding to the National Renewable Energy Laboratory to conduct field studies of agrivoltaics projects in four states through university partnerships. The purpose of the proposed project is to understand vegetation performance, solar configurations, and system costs of co-located solar and agriculture.

NREL would work with university partners to analyze agrivoltaic crop data and review research at four field locations. Each university partner would perform fieldwork at their respective field locations. Each field location has been previously disturbed, are primarily used for farming, and contain existing solar arrays which would be configured to test crop production.

The four partners, their field location, and activities that would be performed at each are:

The University of Arizona's field study location is the Biosphere 2 facility located in Oracle, Arizona. At this location, crop productivity differences under multiple irrigation regimes characteristic of arid regions would be evaluated.

Irrigation infrastructure is already in place and would be used to irrigate the crop areas.

The University of Georgia's field study location is SolAmerica Solar located in Plains, Georgia. At this location, native vegetation and pollinator habitat growth of different seed mixes would be evaluated, and the response of vegetation and pollinators would be analyzed. Crop areas would not be watered as this location follows dry farming methods.

The University of Massachusetts' field study location is South Deerfield Farm located in South Deerfield, Massachusetts. At this location, the effects of distances and spacings in between panels would be evaluated. Irrigation infrastructure is already in place and would be used to irrigate the crop areas.

The Oregon State University's (OSU) field study location is the OSU campus located in Corvallis, Oregon. At this location, dryland (no irrigation) crop rotation would be evaluated. Crop areas would not be watered as this location follows dry farming methods.

At each location, the soil would be prepared for crop sowing and light, shallow tilling may be performed. Crops would be planted either directly underneath the solar array systems or circled around it. The total amount of crop land that would be used at each field location would be up to approximately 0.25 acre.

Monitoring equipment would be installed to measure rainfall, soil moisture content, and sunlight and shading; vegetation height, cover, crop production, and vegetable size measurements would also be collected. The monitoring equipment would be placed on the ground and within the crop area and would not exceed an area of 10 feet x 10 feet.

Project activities would occur during the summers of 2022, 2023, and 2024. At the beginning of each growing year, organic compost would be added to the crop area. Crops would be harvested in the fall of each year and data would be analyzed after the harvest is complete. At the end of the project, monitoring equipment would be removed and the crops would remain in place to be used by each field location as desired.

Project activities would occur on previously disturbed land and would not affect cultural resources, threatened or endangered species, wetlands, floodplains, or prime farmlands. No permits would be required. At the conclusion of the study, the monitoring equipment would be removed and the study plots returned to the facility owner for continued operation. The proposed project would not involve modification or construction of facilities, and pesticides would not be used. At two of the field locations, water would be used but it is not anticipated to use water above levels currently used at these locations.

Mobile air emissions resulting from trucks and farming equipment would be negligible and short-term. Non-hazardous wastes generated during planting and farm operations would be reused, recycled, or disposed of in a sanitary landfill as appropriate.

Workers could be exposed to physical hazards during the course of the proposed project. Existing corporate health and safety policies and procedures would be followed including employee training, proper protective equipment, engineering controls, proper material handling, monitoring, and internal assessments. Additional policies and procedures would be developed if additional health and safety risks are identified.

NEPA PROVISION

DOE has made a final NEPA determination.

Include the following condition in the financial assistance agreement:

A migratory bird nesting survey shall be completed if project activities involving ground disturbance occur between March 15 and September 15.

Notes:

NREL
Completed by Nicole Serio, 8/26/2022

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: Electronically Signed By: Lisa Jorgensen Date: 8/26/2022

NEPA Compliance Officer

FIELD OFFICE MANAGER DETERMINATION

- [x] 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: _____ Date: _____

Field Office Manager