PMC-ND

(1.08.09.13)

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

RECIPIENT: The Board of Trustees at the University of Illinois **STATE:** IL

PROJECT TITLE : Evaluation of Economic, Ecological, and Performance Impacts of Co-Located Pollinator Plantings at Large-Scale Solar Installations

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
	DE-EE0009371	GFO-0009371-002	GO9371

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 (DOE) is proposing to provide federal funding to The Board of Trustees of the University of Illinois to research co-location of pollinator plantings at solar facilities to assess the photovoltaic (PV) performance impact, economic impact, and ecological benefits of incorporating pollinator plantings at large-scale solar facilities. Deliverables for this award would include a pollinator planting implementation manual, cost-benefit calculator, a native plant selection tool, and a pollinator scorecard in order to distribute findings to other industry experts, with the help of an Industrial Advisory Group (IAG) and a Technical Advisory group (TAG).

A previous NEPA Determination was completed for Budget Period 1 (BP1) (GFO-0009371-001; CX A9, A11, and B3.1; 05/07/21). BP2 was previously restricted because there was not enough information available to conduct a meaningful review. Since the first review, the recipient has proposed to change one solar test site, and has proposed to additional research. The proposed changes from the original review include the addition of Prairie Wolf Solar as a solar test site, and the addition of pitfall trapping, opportunistic avian and bat presence surveys, and soil and plant sampling. This NEPA determination applies to the proposed changes and additions to BP1 and to BP2 activities. There is not enough information available to complete a meaningful review of BP3 at this time. BP3 is conditioned subject to further NEPA review.

Award activities new to BP1 would include pitfall trapping, opportunistic avian and bat presence surveys, and soil and plant sampling. Associated activities would include the set up and take down of pitfall traps, walking the solar arrays post-nesting to record the presence of bird and bat species, and taking samples of blooming vegetation and soil cores.

The restrictions on Subtask 4.1 have been lifted since the previous ND. DOE determined that the range of the endangered bumblebee Bombus affinis does not overlap with the project locations, thus additional considerations for this species are no longer needed.

BP2 is comprised of eight tasks (Tasks 9-16). Associated activities would include engagement with stakeholders, reviewing results from BP1, collecting data, installing new pollinator plantings where necessary, and conducting maintenance. Year two research would be carried out on the impact of pollinator plantings on PV performance at solar facility test sites, and at applicable control sites and adjacent agricultural fields. Transects, pan traps, pitfall traps and timed nets would be installed at the solar facility test sites, and removed after the last visit. A draft version of the pollinator planting implementation manual and cost-benefit calculator would be developed. The solar site seed selection tool would be created and tested.

During Task 10, the project team would coordinate as necessary with site operators, vendors, contractors, and landowners to install pollinator plantings at solar facility test sites and adjacent control sites where applicable. During Task 12, the project team would conduct Year 2 pollinator insect field work and avian and bat monitoring. The project team would install transects, pan traps, pitfall traps, and identify netting areas, in addition to conducting avian and bat monitoring.

Proposed activities include the following:

• Annual installation of up to 30 100-ft flagged transects using wire stakes and collecting observations of pollinator insects along the transects on 8-10 occasions during each of the 3 summers.
• Netting of insects over 30 minutes at two site locations on 8-12 occasions during each of the three summers.
• Installation of small pan-trap infrastructure (likely on a pole, fence, or other existing onsite infrastructure) in 1 to 3locations per site, setting up pan traps for 8 to 24 hours 4 times per summer, collecting the trapped insects, refrigerating, and sending to lab for analysis.
• Installation of an acoustic monitor and an ultrasonic monitor (likely on a pole, fence, or other existing onsite infrastructure), and monthly collection of data cards and replacement of batteries from these monitors.
• Pitfall trapping would entail using small cups placed in holes in the ground, filled with soapy water, and deployed for 24-hour increments, concurrent with the pan traps. Trapped arthropods would be collected and saved for identification. This data collection would be done 4-6 times per year.
• Bird nesting surveys would be conducted throughout the summer, though the focus would be on post-nesting season (e.g., August – September) when inactive nests or nest remnants can be found. Surveys would be conducted in daylight hours, shortly before or after the pollinator surveys. At least two observers would walk the solar arrays and some perimeter locations at the solar facility test site for at least 30 minutes, recording nest locations and identifying bird species.
• Collection of soil cores and plant samples would involve taking 5-cm diameter and 30-cm deep soil cores using a manual soil sample probe, and up to ten cores per location would be taken per sampling period.
• Two to four times a year, plant tissue samples would be collected from blooming plants in pollinator habitats. Tissue would be collected from the bottom, middle, and top of the sample.

One privately-owned solar facility has been confirmed as a location for the aforementioned field activities:

1. Prairie Wolf Solar (National Grid Renewables; Coles County, IL), a 19 MW, 130 acre solar PV facility.

Acoustic and ultrasonic recorders would be used to identify the types of birds and bats utilizing the sites through

their vocalizations. The acoustic bird monitoring equipment would be used to collect species-specific avian vocalization data year-round both before and during pollinator plantings establishment; the ultrasonic bat monitoring equipment would be used to collect species-specific bat vocalizations. The bird acoustic recorders would be programmed to record vocalizations at sunrise and sunset, throughout the year, while the bat recorders would be programmed to record from sunset until sunrise and would be removed in winter when bats are hibernating. These research tools are non-intrusive and would not have the potential to impact any sensitive environmental resources that may occur in the project areas. In addition, opportunistic bird and bat presence surveys will be conducted to supplement the monitoring data by confirming avian/bat presence, and in some cases identifying species using the sites

Equipment installations would be temporary and any resulting ground disturbance would be negligible. The transect flags (50-200 per site, depending on site size) are attached to 3 ft. thin wires that would be inserted into the soil to a depth of about 6 inches. They would be placed at the beginning of each field season (in early July) and removed during the last field work event (typically end of August). The acoustic and ultrasonic monitors are small electronic devices that would either be installed on small metal posts mounted on fences or driven no more than 1 foot into the ground. If using posts driven into the ground, permission and utility clearance from site operators would be obtained prior to installation. For performance monitoring, three small equipment skids would be used per site. The skids would be outfitted with data logging equipment to monitor temperature, humidity, and luminosity underneath panels. At each site, the skids would be placed underneath a PV panel with pollinator plantings, in a corridor on the site, and underneath a PV panel with no plantings. All materials used and produced by the project would be transported back to research facilities and disposed of properly.

The proposed project would not involve the permanent modification of existing/planned facilities or any change in the use, mission, or operation of these facilities. There are no cultural resources, critical habitats, wetlands, or floodplains within the project areas. A migratory bird nesting survey shall be completed if project activities involving ground disturbance occur between March 15 and September 15. If nests or eggs are found, the area would be cordoned off with a proper buffer until nestlings fledge.

NEPA PROVISION

DOE has made a conditional NEPA determination.

The NEPA Determination applies to the following Topic Areas, Budget Periods, and/or tasks:

All tasks and subtasks of budget Periods 1 and 2.

The NEPA Determination does not apply to the following Topic Area, Budget Periods, and/or tasks:

All tasks and subtasks of Budget Period 3.

Include the following condition in the financial assisstance agreement:

A migratory bird nesting survey shall be completed if project activities involving ground disturbance occur between March 15 and September 15. If nests or eggs are found, the area would be cordoned off with a proper buffer until nestlings fledge.

Notes:

Solar Energy Technologies Office (SETO)
Review completed by Alex Colling on 05/05/2022.
This NEPA Determination requires legal review of the tailored NEPA provision.

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.

A portion of the proposed action is categorically excluded from further NEPA review. The NEPA Provision identifies Topic Areas, Budget Periods, tasks, and/or subtasks that are subject to additional NEPA review.

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature:  Electronically Signed By: Kristin Kerwin Date: 5/13/2022

NEPA Compliance Officer

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: _____ Date: _____

Field Office Manager