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

RECIPIENT: Electric Power Research Institute **STATE:** CA

PROJECT TITLE: Unmanned Aircraft Systems (UAS) and Light Detection and Ranging (LiDAR)/Camera Technologies to Detect Avian Events and other Environmental Measures at Utility-Scale Solar Power Plants

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0002064	DE-EE0009006	GFO-0009006-001	GO9006

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.)
B3.2 Aviation activities	Aviation activities for survey, monitoring, or security purposes that comply with Federal Aviation Administration regulations.
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.

Rationale for determination:

The U.S. Department of Energy (DOE) is proposing to provide federal funding to Electric Power Research Institute (EPRI) to design, fabricate and field test two cost-effective remote sensing technologies to monitor avian fatalities at utility-scale solar facilities: fixed platform (Animal Activity Monitoring-AAM) and aerial-based (Unmanned Aerial System-UAS). Project work would occur at EDM International Inc. (Fort Collins, CO) and the Southwest Research Institute (SWRI – San Antonio, TX). Both AAM and UAS field trials as well as UAS pilot testing would occur at the Blythe Solar Power Project and McCoy Solar Energy Project near Blythe, CA and the California Valley Solar Ranch near Santa Margarita, CA. The project would be completed over two Budget Periods (BPs), with a Go/No-Go Decision Point in between the BPs.

During BP1, AAMs with additional sensors and machine vision algorithms compared to current systems would be developed and pilot tested in laboratory and at contractor facilities. Also, UAS designed to utilize machine learning would be developed with some initial data collection and pilot testing occurring in the field. During BP2, the AAM and UAS would both be deployed for field testing, some of which would include co-deployment. Development activities would occur within existing dedicated laboratory space designed for this type of work and would utilize standard equipment; therefore no new permits, additional licenses and/or authorizations would be necessary. No ground disturbing activities or changes in operation of existing facilities are required. Temporary installation of equipment outdoors would occur for testing of the AAM platform at SWRI within an existing paved area containing equipment from previous projects. This testing would include simulating avian targets using UAS to allow researchers to control distance, altitude, velocity, and target size. Field testing activities for both the AAM and UAS would occur at the existing solar facilities in California listed above.

The project would involve the use and handling of various hazardous materials during fabrication and testing. All

such handling would occur in-lab with dedicated proper hazardous material handling and disposal practices to ensure project activities that involve these materials would pose no risk to the public. All hazardous materials would be managed in accordance with Federal, state, and local environmental regulations. During project activities, existing internal health and safety policies and procedures would be followed, including safety meetings, training, use of personal protective equipment (PPE), monitoring, and ventilation to help minimize health and safety risks to employees and the public.

Up to four AAM systems would be installed at field testing locations. Each would be mounted on a small platform outside of a solar panel yard taking up an area approximately 1x1 meters square with the height determined by the solar panel height around it. The project involves the use of two UAS for AAM testing, spring nest surveys, and fall carcass surveys. Flight heights are expected to range from 25 to 100 meters above ground level. These activities could pose a health and safety risk to the project workers who are operating the UAS, humans working at the solar facility, and humans conducting concurrent carcass searches alongside the UAS operations who may be at risk of a falling UAS from faulty operation. Project workers operating UAS would be required to follow required training protocols and health and safety policies and procedures to ensure compliance with regulations and minimize health and safety risks to project workers and human searchers. The recipient would adhere to FAA Part 107.39 regulations (operation over human beings) which prohibits UAS flights over individuals who are not directly participating in the operation of the UAS or who are not located under a covered structure or inside a stationary vehicle that can provide reasonable cover from a falling UAS. All UAS would have the required operating licenses and permits in place from federal and state agencies, including any additional flight permissions that may be needed if UAS will be operating on Bureau of Land Management managed land.

The U.S. Fish and Wildlife Service's (USFWS) Information for Planning and Consultation (IPaC) database indicates 13 endangered or threatened species (giant kangaroo rat, Tipton kangaroo rat, San Joaquin kit fox, California condor, blunt-nosed leopard lizard, giant garter snake, green sea turtle, California red-legged frog, delta smelt, conservancy fairy shrimp, vernal pool fairy shrimp, San Joaquin wooly-threads, and desert tortoise) and five migratory bird species possibly occurring in or near the two project areas. California condors nest in various types of rock formations including natural cavities or caves in cliffs, crevices, overhung ledges, and potholes, and, more rarely, in cavities in giant sequoia trees. All field testing activities, including UAS nest surveying, would occur at the solar facilities listed above, none of which are near any nesting habitat suitable for California condors. Most of the 13 listed species are not expected to inhabit the solar facilities where project work is taking place due to the facilities locations being outside of the San Joaquin Valley, elevation, lack of water bodies, or exclusionary fencing. Additionally, it is anticipated that any birds nesting in the area of the solar facilities would be ground, grass, or shrub nesting species so with flight heights of the UAS nest and carcass surveys occurring at a minimum of 25 meters above ground level or higher, disturbance to nesting birds or other animals is expected to be minimal. Considering field testing includes only four platforms taking up a 1x1 meter area each within existing disturbed areas and UAS flights, the locations of the solar facilities, and the short timeframe of the field testing; DOE has determined that there would be no effect to listed special status species.

DOE completed a review of other resources of concern and found that there would be no impacts anticipated to resources of concern due to the proposed activities.

This project includes the use of small unmanned aerial systems (sUAS). The recipient is responsible for ensuring that all activities involving sUAS are compliant with 14 CFR Part 107 or an applicable Certificate of Waiver or Authorization (COA). This includes, but is not limited to, aircraft requirements such as remote pilot-in-command certification, authorities and responsibilities; ensuring the sUAS is in a condition for safe operation; registration; understanding airspace classifications and requirements; and accident reporting (if applicable).

NEPA PROVISION

DOE has made a final NEPA determination.

Include the following condition in the financial assisstance agreement:

This project includes the use of small unmanned aerial systems (sUAS). The Recipient is responsible for ensuring that all activities involving sUAS are compliant with 14 CFR Part 107 or an applicable Certificate of Waiver or Authorization (COA). This includes, but is not limited to, aircraft requirements such as remote pilot-in-command certification, authorities and responsibilities; ensuring the sUAS is in a condition for safe operation; registration;

understanding airspace classifications and requirements; and accident reporting (if applicable).

Notes:

Solar Energy Technologies Office
This NEPA determination requires a tailored NEPA provision.
Review completed by Casey Strickland, 02/24/2020

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: Electronically Signed By: Casey Strickland Date: 2/26/2020

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