

PMC-ND

(1.08.09.13)

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



RECIPIENT: General Electric Company

STATE: NY

PROJECT TITLE : Ultrasonic Bat Deterrent Technology

Funding Opportunity Announcement Number DE-FOA-0001181	Procurement Instrument Number DE-EE0007035	NEPA Control Number GFO-0007035-001	CID Number
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Based on my review of the information concerning the proposed action, as NEPA Compliance Officer (authorized under DOE Order 451.1A), 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.)

B3.3**Research related to conservation of fish, wildlife, and cultural resources**

Field and laboratory research, inventory, and information collection activities that are directly related to the conservation of fish and wildlife resources or to the protection of cultural resources, provided that such activities would not have the potential to cause significant impacts on fish and wildlife habitat or populations or to cultural resources.

B3.6 Small-scale research and development, laboratory operations, and pilot projects

Siting, construction, modification, operation, and decommissioning of facilities for small scale 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 United States Department of Energy (DOE) is proposing to provide federal funding to General Electric (GE), to conduct bat deterrent studies to measure the effectiveness of bat deterrent devices at wind farms. Funding would be used for conducting bat deterrent research at three field sites and at a laboratory site located at Texas Christian University (TCU). Funding would also be used for project management, data collection, computer modeling, analysis, and dissemination activities.

GE would perform 7 tasks for this project. Tasks include:

Task 1: Flight room testing.

Task 2: Field testing.

Task 3: Deterrent design (Budget Period 1 [BP 1]):

Task 4: Turbine field study (BP 1)

Task 5: Deterrent design (Budget Period 2 [BP 2])

Task 6: Turbine field study (BP 2)

Task 7: Program Management and Reporting

Task 1 would involve research to be conducted at TCU, by GE and TCU jointly. This would include TCU mist netting bats in the Fort Worth area, introducing the bats to a previously existing flight facility at TCU, and testing different acoustic deterrent

devices on the bats. TCU is doing similar work in a related DOE grant (DE-EE0007033) for which a NEPA determination has been completed (GFO-00007033-1). In conjunction with the work under grant 7033, TCU would use mist netting to catch wild bats in the Fort Worth area. Specific capture sites could include: Foster Park, Rocky Creek Park, Forest Park, Overton Park, South Z-Boaz Park, Oakmont Linear Park, and Trinity Park. TCU has obtained permission from the City of Fort Worth Parks and Community Service Department to conduct mist netting in these parks. Bats found in the capture areas include Eastern Red, Hoary, Silver-haired, Evening, Mexican free-tailed, and Tri-colored. There are no endangered bat species found in the capture area, as verified by U.S. Fish & Wildlife Service (USFWS) bat range maps and USFWS's "Information for Planning and Conservation" website (iPaC). TCU would be required to follow the University's general Institute and Animal Care Use Protocol (IACUC permit #14-01). Wild caught bats would be housed in a bat flight facility at TCU, in Fort Worth, Texas. The bat flight facility is pre-existing and no modifications to the facility would be undertaken. GE would introduce an acoustic deterrent to the flight facility to determine its effectiveness at bat deterrence. After completion of the flight testing, facility research bats would be released to the wild at the location where they were originally caught. Bats used at the facility will be kept in captivity for approximately 4 weeks. All activities within Task 1 would be consistent with actions contained in DOE categorical exclusions B3.3 and B3.6.

Task 2 would include field testing of the acoustic deterrent at two field sites; the Wolf Ridge Wind Farm near Muenster Texas, and the Shawnee National Forest. The research at would include monitoring of bat species, and then the introduction of a deterrent acoustic device. The monitoring would involve the use of night vision capable video cameras. The deterrent device would be a small air jet nozzle (several tenths of an inch diameter) designed to generate sound in the ultrasonic range. The nozzle would be attached to a flexible hose and mounted on a tripod or other fixture that is secured to the ground. The nozzle would be powered with a standard compressed nitrogen bottle. The cameras would be used to record bat activity within proximity to the deterrent. Research would be conducted at the Wolf Ridge Wind Farm. The Wolf Ridge Wind Farm is approximately 70 miles north of Fort Worth, Texas. Bats found in the area around Wolf Ridge would be the same as those found in the Fort Worth area, identified above. There are no endangered bat species found in the area. Research would also be conducted at Shawnee National Forest at the following locations: a) borrow ponds located within the Oakwood Bottoms Greentree Reservoir; b) on national forest lands along Grand Pierre Creek; c) on national forest lands along Clear Creek; d) on national forest lands along the Big Muddy River; and, e) on national forest lands along Big Creek. Shawnee National Forest contains Indiana Bats and Northern Long-eared Bats, both endangered species. Authorization to conduct the research has been granted by the USFS. Field testing at Wolf Ridge would be consistent with actions contained in DOE categorical exclusions B3.3 and B3.6, as no endangered bat species are found in the Wolf Ridge area. Field testing at Shawnee National Forest may affect endangered species. Thus consultation with the USFWS must be completed before a NEPA determination can be made. Consultation is currently ongoing.

Task 3 would be design work based on the results in Task 1 and 2. This is purely design work and no field work would be involved. All activities in Task 3 would be consistent with actions contained in DOE categorical exclusion A9.

Task 4 would be Budget Period 1 field work at the California Ridge Wind Farm, in Champaign and Vermillion Counties, Illinois. The California Ridge site contains Indiana Bats and Northern Long-eared Bats, both endangered species. In Budget Period 1 DOE funded field research at California Ridge would be limited to monitoring bat activity through passive thermal imaging cameras. Cameras would be located at the California Ridge site and would take thermal images of bat activity. The cameras themselves would not produce any deterrent or effect bat behavior. GE is currently conducting independent deterrent research at the California Ridge Site. For that research GE has independently consulted with the USFWS, has obtained a permit for incidental take, and an EA has been completed (See, Federal Fish and Wildlife Permit #TE03502B; and Environmental Assessment: Indiana Bat Enhancement of Survival Permit Application California Ridge I Wind Energy Project Vermillion and Champaign Counties, Illinois). DOE funds under this task are only being used for thermal imaging; GE is conducting privately funded deterrent research, and would do so regardless of the DOE funded part of the project. Endangered bat species are present at California Ridge. However, due to the passive nature of the thermal imaging cameras the DOE funded research under this Task would have No Effect on the species. As such, consultation is not required for this task and Task 4 would be consistent with actions contained in DOE categorical exclusions B3.3 and B3.6.

Task 5 would be Budget Period 2 design work based on the results from Tasks 1-4. Under this task, GE would re-design the acoustic deterrents to maximize effective deterrent capability, based on previous results. All activities in Task 5 would be consistent with actions contained in DOE categorical exclusion A9.

Task 6 would be Budget Period 2 field work at California Ridge. The task would include using federal funds for the introduction of deterrent devices at the California Ridge Wind Farm. The GE bat deterrent device is a small air jet designed to generate sound in the ultrasonic range. Each ultrasonic emitter is a small metal nozzle with a diameter of several tenths of an inch. When installed in the turbine, the nozzle would be attached to the end of a metal pipe of approximately 1 inch diameter that extends from the turbine. As part of the ongoing research GE has operated 4 deterrents at various locations on the turbine nacelle and tower. For the DOE funded work it would be anticipated that between 4 and 8 deterrents would

be operating on the nacelle and tower or potentially one deterrent located in each blade. Each nozzle would be connected to a flexible hose that extends to one of two Ingersoll-Rand electric compressors located on a service platform inside the turbine. The compressors would be 5 HP and powered using internal turbine power. Line pressure would be monitored during operation and a safety valve would be installed at the compressor to prevent over pressurization. As part of the ongoing research, each compressor has operated two emitters with a constant output pressure. For the DOE funded work, control valves may be used to pulse more than two emitters per compressor. The final design of the 2016 California Ridge deterrent system (including number of deterrents, placement of deterrents, and compressor controls) would be dependent upon the results from the 2015 field testing at Shawnee, and 2015 California Ridge testing. The deterrent work in Task 6 would involve actively deterring, and thus impacting, endangered species, specifically the Indiana Bat and the Northern Long-eared Bat. It is anticipated that the work would create an incidental take of up to 2 Indiana Bats per year, and up to 3 Northern Long-Eared Bats per year. Task 6 would impact endangered bat species and could create an incidental take. As such, a NEPA determination cannot be made at this time and Formal Consultation with the USFWS must be completed before a determination may be made. Consultation with USFWS is ongoing.

Task 7 would be project management and reporting. All activities in Task 7 would be consistent with actions contained in DOE categorical exclusion A9.

Based on a review of the project information DOE has determined that activities being proposed under Tasks 1, 3, 4, and 5 of the proposed project, and field work conducted at Wolf Ridge under Task 2 of the project, would not have significant individual or cumulative impact to human health and or/environment. DOE has determined that the proposed Tasks are consistent with actions outlined in Categorical Exclusions A9 "information gathering and dissemination", B3.3 "research related to conservation of fish, wildlife, and cultural resources", and B3.6 "small scale research and laboratory operations", and are therefore categorically exclude from further NEPA review.

Task 6, and field work at Shawnee National Forest in Task 2 require consultation with the USFWS and are therefore not included in this determination and are subject to further NEPA review.

NEPA PROVISION

DOE has made a conditional NEPA determination for this award, and funding for certain tasks under this award is contingent upon the final NEPA determination.

Insert the following language in the award:

You are restricted from taking any action using federal funds, which would have an adverse affect on the environment or limit the choice of reasonable alternatives prior to DOE/NNSA providing either a NEPA clearance or a final NEPA decision regarding the project.

Prohibited actions include:

- Task 2 - Any field work at Shawnee National Forest.
- Task 6

This restriction does not preclude you from:

- Task 1,3,4 and 5.
- Task 2 field work at Wolf Ridge.

If you move forward with activities that are not authorized for federal funding by the DOE Contracting Officer in advance of the final NEPA decision, you are doing so at risk of not receiving federal funding and such costs may not be recognized as allowable cost share.

Note to Specialist :

Wind Program
This NEPA determination requires a tailored NEPA provision
NEPA review completed by Roak Parker on June 24, 2015

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature:


NEPA Compliance Officer

Date:

6/26/2015

FIELD OFFICE MANAGER DETERMINATION