

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

<b>Funding Opportunity Announcement Number</b>	<b>Procurement Instrument Number</b>	<b>NEPA Control Number</b>	<b>CID Number</b>
DE-FOA-0001181	DE-EE0007035	GFO-0007035-002	

**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:

**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.

## 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 (BP 1)
- Task 4: Turbine field study (BP 1)
- Task 5: Deterrent design (BP 2)
- Task 6: Turbine field study (BP 2)
- Task 7: Program Management and Reporting

DOE completed a previous NEPA review and determination for Tasks 1, 2 (with the exception of any field work at Shawnee National Forest), 3, 4, 5, and 7 (GFO-0007035-00, CX A9, B3.3, and B3.6).

This review applies to the field work at Shawnee National Forest (identified in Task 2), and field work at the California Ridge Wind Farm (California Ridge) (identified in Task 6), both located in Illinois.

The field work in Task 2 would include field testing of the acoustic deterrent at the Shawnee National Forest. The research would include monitoring of bat species followed by 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 occur 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. In order to conduct

research at Shawnee National Forest, the National Forest Service has identified specific conditions with which GE must comply. These conditions are included in the tailored provisions of this NEPA determination.

Both the Indiana and northern long-eared bats are present in the Shawnee National Forest. The Indiana bat is listed as endangered and the northern long-eared bat is listed as threatened under the Endangered Species Act. Because this research may affect threatened and endangered species, DOE initiated formal consultation with the USFWS. This formal consultation addressed both the field research at Shawnee National Forest discussed here, as well as 2016/2017 field research at California Ridge, discussed below. On July 17, 2015, the USFWS issued the "Final Biological Opinion for Ultrasonic Bat Deterrent Technology Effectiveness Research Funded by the Department of Energy and Conducted by the General Electric Company and Partners" (hereinafter, Biological Opinion). In the Biological Opinion, the USFWS determined that the research at Shawnee may temporarily alter foraging behavior of endangered bats and may temporarily displace bats from the deterrent area, but that the displacement is not expected to create any likelihood of injury nor significantly disrupt normal behavioral patterns, including breeding, feeding or sheltering. This field research is not likely to adversely affect any threatened or endangered species.

Task 6 would entail the introduction of deterrent devices at the California Ridge. 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 field research, it is 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. Both Indiana and northern long-eared bats are present at California Ridge. The deterrent work in Task 6 would involve actively deterring bats, and could potentially impact the Indiana bat and the northern long-eared bat.

The USFWS Biological Opinion states that the proposed project's interdependent and interrelated actions are not likely to jeopardize the existence of any threatened or endangered species, nor lead to the destruction or adverse modification of any critical habitat. However, the action, Task 6 in particular, is likely to lead to the incidental take of the Indiana bat and the northern long-eared bat. Through the Biologicals Opinion, the USFWS has authorized, in an Incidental Take Statement, the take of up to two (2) Indiana bats per year and up to three (3) northern long-eared bats per year, as allowed per Section 7(b) (4) and 7(o)(2) of the ESA. To remain exempt of prohibitions under Section 9 of the ESA, the USFWS has identified, in its Biological Opinion, Terms and Conditions, and Reasonable and Prudent Measures, which must be complied with by DOE and GE. These Terms and Conditions, and Reasonable and Prudent Measures, are included in the tailored provisions of this NEPA determination.

Based on a review of the project information, DOE has determined that field research at Shawnee National Forest and at the California Ridge Wind Farm would not have significant individual or cumulative impact to human health and or/environment provided GE complies with the conditions of this determination. DOE has determined that the proposed tasks are consistent with actions outlined in Categorical Exclusion B3.3 "research related to conservation of fish, wildlife, and cultural resources" and are therefore categorically exclude from further NEPA review.

## NEPA PROVISION

DOE has made a final NEPA determination for this award

Insert the following language in the award:

If you intend to make changes to the scope or objective of your project you are required to contact the Project Officer identified in Block 11 of the Notice of Financial Assistance Award before proceeding. You must receive notification of approval from the DOE Contracting Officer prior to commencing with work beyond that currently approved.

Insert the following language in the award:

You are required to:

The recipient is required to comply with all stipulations in the September 28, 2014 Forest Service letter from Tim Pohlman to Karyn Coppinger, including:

- No acoustical bat deterrent activities may take place within 500 feet of any known Indiana bat or northern long-eared bat hibernacula.
- No ATVs may be used to access sites.
- All equipment, flagging tape, buoys or other items must be removed within 72 hours of completion of testing.
- No permanent structures may be placed on national forest lands.
- No copies may be made of Forest Service keys. All Forest Service keys must be returned within 72 hours of completion of testing.
- All gates must be closed and locked after passing through.
- The recipient may not access Oakwood Bottoms area with a motor vehicle after moderate to heavy rainfall.
- The recipient must notify the Forest Service at least 48 hours prior to any time they are planning on being on the forest to conduct testing.

The recipient is required to comply with Reasonable and Prudent Measures and with Terms and Conditions for as identified in the July 17, 2015 "Final Biological Opinion for Ultrasonic Bat Deterrent Technology Effectiveness Research Funded by the Department of Energy and Conducted by the General Electric Company and Partners" (Biological Opinion) issued by the National Forest Service, Rock Island Ecological Services Field Office.

The Biological Opinion requires that:

- Within 30 days of completion of ultrasonic bat deterrent research at Shawnee, GE will notify DOE, Fish and Wildlife Service, and the Forest Service of their results.
- GE must feather blades below cut in speeds at California Ridge.
- Prior to the 2016 and 2017 research, GE shall estimate bat fatality rates, by species, using currently acceptable statistical methods, and share that estimate, and the methods used, with DOE and the Forest Service.
- If, at any point, fatality monitoring during 2016 and/or 2017 at California Ridge indicates that take of either species may exceed authorized levels, GE must notify DOE and the Forest Service within 48 hours, and meet with DOE and Forest Service to discuss measures to reduce take rates.
- If, during the period of monitoring, the level of incidental take approved in the Biological Opinion (up to 2 Indiana bats and 3 northern long-eared bats per year) is exceeded, GE must immediately notify DOE and the Forest Service, all deterrent research at California Ridge should stop until consultation has been reinitiated and a review of reasonable and prudent measures has been completed by the Forest Service.
- Within 60 days after the end of each year of the study, GE must share written results, and must discuss results, regarding observed effectiveness of the acoustic deterrent devices with the DOE and the Forest Service.
- Final results of all research, including statistical analysis, calculated mortality rates, summaries of monitoring efforts, searcher efficiency calculations, and carcass removal times must be provided by GE to DOE and the Forest Service within one year of the final year of the study monitoring seasons.
- GE shall work with DOE and the Forest Service to facilitate the dissemination of research results identified above to Forest Service personnel.

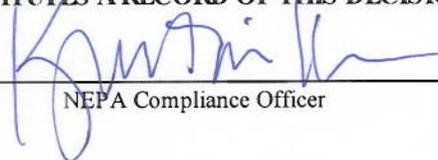
Note to Specialist :

**Wind Program**

This NEPA determination requires a tailored NEPA provision.  
NEPA review completed by Roak Parker on July 24, 2015.

**SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.**

NEPA Compliance Officer Signature:

  
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NEPA Compliance Officer

Date:

7/24/2015

**FIELD OFFICE MANAGER DETERMINATION**

Field Office Manager review required

**NCO REQUESTS THE FIELD OFFICE MANAGER REVIEW FOR THE FOLLOWING REASON:**

Proposed action fits within a categorical exclusion but involves a high profile or controversial issue that warrants Field Office Manager's attention.

