

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** : NWTC Site 1E Acoustic Tomography System; NEPA Tracking No. 17-016

<b>Funding Opportunity Announcement Number</b>	<b>Procurement Instrument Number</b>	<b>NEPA Control Number</b>	<b>CID Number</b>
	DE-AC36-08GO28308		GO28308

**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:

<b>DOE/EA 1914 (NREL NWTC)</b>	Final Site-Wide Environmental Assessment of the Department of Energy's National Wind Technology Center at the National Renewable Energy Laboratory
------------------------------------	--

## Rationale for determination:

The U.S. Department of Energy's (DOE) National Renewable Energy Laboratory (NREL) in partnership with the University of Colorado is proposing to install and conduct research with an acoustic tomography system that would measure two-dimensional wind profiles. The system installation and research would be conducted at the National Wind Technology Center (NWTC). The NWTC is a federally-owned facility that consists of 305 acres and is primarily utilized for wind energy research, development, and testing. The site is located southeast of the intersection of Colorado Highway 93 and CO-128, in Jefferson County, Colorado.

The tomography system consists of nine freestanding towers, each 30 feet in height. On each tower a series of microphones and speakers would be installed. At the base of each tower an instrumentation box would be mounted to house power outlets and preamps. The center tower would have a sonic anemometer and temperature probe installed. The total area of the array field would be approximately 80 x 80 meters or 1.6 acres.

Using a bobcat or forklift, the towers would be installed onto large concrete blocks (180"x 60"x 16") that are placed onto the ground that act as a foundation for each tower. Approximately 6 inches of sand would be placed beneath the concrete blocks to provide an additional stable surface. No excavation or guy wires would be used for this project. The towers are intended to be moveable to allow for minor location adjustments. During the course of the research/measurement effort, the configuration of the array may be rearranged within the existing area footprint. Above ground conduit cabling would be run from each tower to the 1E.3 data shed, which is adjacent to the proposed system installation site.

Additional site preparation would involve laying down the 1.9kW Skystream wind turbine currently present at Site 1E.3. This is a small monopole and guyed turbine that is approximately 30 feet tall. The tower is a tilt up style and NWTC staff can use a winch on the NWTC service truck to raise or lower the turbine and tower together. The turbine would remain at the site (in the lowered position) and once the array is operation the turbine would be raised to determine whether it interferes with the array.

Research activities would be conducted intermittently (about once per month) over a period of 5 years. After this time period, the tomography system would be decommissioned - the 9 poles would be removed along with the associated concrete blocks, equipment would be gathered and disconnected and eventually excessed, reused or disposed of properly.

Acoustic tomography is a remote sensing technique that uses the dependence of sound speed in air on temperature and wind speed along the sound propagation path. During research activities each speaker would transmit a short

sound pulse at approximately 1kHz and repeat every 0.5 seconds. The sound pressure level at the middle of the array is approximately 56 to 60 dBA. This is not considered harmful to human health and safety because, at this frequency and amplitude, it is comparable to normal conversation.

Existing NREL health and safety policies and procedures would be followed including employee training, proper protective equipment, engineering controls, monitoring, and internal assessments. Additional policies and procedures would be implemented as necessary as new health and safety risks are identified.

Minor impacts to grassland vegetation would occur from vehicular and equipment movement during construction. Depending on project schedules and equipment availability, reasonable efforts to conduct the work during dry conditions would be undertaken by NREL to minimize impacts to vegetation. All ground disturbing activities would also be conducted in accordance with NREL Lab Level Procedure 6-1.29: Stormwater Pollution Prevention for Construction Activities for the National Wind Technology Center.

Nesting bird surveys would be performed prior to the start of project activities if work is performed between March 15th and September 15th. Operation of the tomography system would occur infrequently (once a month) and in short duration (1 hour). The sound level of the system is relatively low (60 dBA). While the sound produced by the array field may be audible to wildlife, impacts would be negligible and short term. Project activities would not affect cultural resources, threatened or endangered species, wetlands, floodplains, or prime farmlands.

Based on the review of the proposed activities, DOE has determined that this project falls into the category of "Routine Technical Tasks for Research Activities", which is discussed in section 1.4.3.2 and analyzed in DOE's 2014 Final Site-Wide Environmental Assessment of the NREL NWTC (DOE/EA-1914). DOE has determined that this activity is bound by the environmental impact analysis contained in this EA and the respective FONSI, and no further NEPA review is required.

**NEPA PROVISION**

DOE has made a final NEPA determination for this award


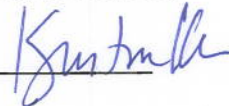
Insert the following language in the award:

If the Recipient intends to make changes to the scope or objective of this project, the Recipient is required to contact the Project Officer, identified in Block 15 of the Assistance Agreement before proceeding. The Recipient must receive notification of approval from the DOE Contracting Officer prior to commencing with work beyond that currently approved. If the Recipient moves forward with activities that are not authorized for Federal funding by the DOE Contracting Officer in advance of a final NEPA decision, the Recipient is doing so at risk of not receiving Federal funding and such costs may not be recognized as allowable cost share.

Note to Specialist :

NEPA review completed by Laura Margason on August 16, 2017

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

NEPA Compliance Officer Signature:  Kristin Kerwin  Date: 8/17/2017  
NEPA Compliance Officer

**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.
- Proposed action falls within an EA or EIS category and therefore requires Field Office Manager's review and determination.

**BASED ON MY REVIEW I CONCUR WITH THE DETERMINATION OF THE NCO :**

Field Office Manager's Signature: \_\_\_\_\_ Date: \_\_\_\_\_  
Field Office Manager