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(1.08.09.13)

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



RECIPIENT: Vaisala Inc

STATE: CO

**PROJECT TITLE :** Wind Forecasting Improvement Project in Complex Terrain near the Columbia River Gorge

<b>Funding Opportunity Announcement Number</b>	<b>Procurement Instrument Number</b>	<b>NEPA Control Number</b>	<b>CID Number</b>
DE-FOA-0000984	DE-EE0006898	GFO-0006898-002	GO6898

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>A9 Information gathering, analysis, and dissemination</b>	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.)
<b>B3.1 Site characterization and environmental monitoring</b>	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 Vaisala, Inc. to participate in the Wind Forecasting Improvement Project (WFIP2). The objective of Vaisala's research would be to improve wind forecasting in complex terrain near the Columbia River Gorge. The project would include design and implementation of a field campaign to collect and analyze weather data. This would include collection of data from existing wind facilities, installation of temporary (12-18 months) instrumentation in the field and collection of data from those instruments, and analysis of all data collected.

DOE completed a previous NEPA determination for Tasks 1, 2, and 5-13 (GFO-0006898-001; CX A9; 12/23/14) which included information gathering, analysis, and dissemination activities. This NEPA determination applies to Tasks 3 and 4 only.

Task 3 would include deployment of instruments in the field. Instruments would include various meteorological instruments such as LIDAR, wind profilers, and temporary towers. Task 4 would include managing the field study and relocating instruments throughout the study area. Sites for instrument relocation are currently unknown; therefore, instrument relocation activities described in Subtask 4.2 –are prohibited and additional NEPA review will be required prior to completing any instrument relocations.



WFIP2 is a coordinated effort among four DOE national laboratories (NREL, PNNL, ANL, and LLNL), NOAA, and Vaisala. There would be 26 WFIP2 proposed field sites. Eleven of the sites would be occupied solely by DOE laboratories and/or the National Oceanic and Atmospheric Administration, and would not include Vaisala. Those sites were not analyzed by DOE in this determination; however, for all work conducted through DOE laboratories or NOAA, project activities are subject to additional NEPA review by the cognizant NEPA Compliance Officer for the lab or NOAA.

The remaining 15 sites would include Vaisala equipment, and may also include equipment from one of the labs and/or NOAA. Several pieces of equipment would also be provided by the University of Colorado (CU), Lockheed Martin, and the University of Notre Dame (UND), but managed by Vaisala. These fifteen sites were analyzed for this DOE NEPA determination. A cumulative review was conducted to include all Vaisala equipment as well as the additional DOE lab or NOAA equipment at each of the fifteen shared sites.

The proposed field sites would be:

1. AON1 (45.51250556N, 119.5350306W)
2. AON2 (45.55357N, 120.15554W)
3. AON3 (45.9376099999999N, 119.40594W)
4. AON4 (45.676691N, 120.416813W)
5. AON5 (45.58323611N, 120.7667778W)
6. AON6 (45.51385N, 120.77827W)
7. AON7 (45.63102N, 121.06779W)
8. AON8 (45.60164N, 121.58948W)
9. Boardman Airport (45.8202256811046N, 119.81128378311W)
10. Condon Airport (45.246239572005N, 120.1705161264W)
11. Gordons Ridge (45.5164098271504N, 120.775762774302W)
12. Rufus Water Treatment Plant (45.72N, 120.7W)
13. Troutdale Airport (45.5509305215208N, 122.407155390306W)
14. Wasco Airport (45.5901959605553N, 120.670726180904W)
15. Physics Site (45.638056N, 120.642778W)

Sites 1, 2, 3, 5, 6, 7, and 8 contain pre-existing Triton wind profilers from Vaisala. No new equipment would be placed at these sites. Site 4 would contain a new Triton wind profiler from Vaisala. The Triton wind profiler is approximately 6ft by 6ft by 9ft and would be set upon the ground without ground disturbance.

Site 9 would contain a Lockheed Martin WindTracer that is a 6.5ft by 8ft by 10.5ft high box (Vaisala managed). NOAA equipment at Boardman would include a wind profiling radar, SoDAR, scanning LiDAR, microbarograph, and a ten meter meteorological tower.

Site 10 would contain a radiometer (1ft by 3ft by 5ft high) from CU (Vaisala managed), a SoDAR unit from NREL, and a wind profiling radar, a microbarograph, and a ten meter meteorological tower from NOAA.

Site 11 would contain a WindCube from CU (Vaisala) that is a 4ft by 4ft by 5ft high box and a WindTracer from Lockheed Martin (Vaisala managed).

Site 12 would contain a SoDAR unit and radiometer from UND (Vaisala managed), a microbarograph from NOAA, and a three meter meteorological tower from PNNL.

Site 13 would contain a WindCube from CU (Vaisala managed), and an equipment trailer, wind profile radar, radio acoustic sound system, and ten meter meteorological tower from NOAA.

Site 14 would contain a WindCube from CU (Vaisala managed), a ceilometer from UND (Vaisala managed), and wind profiling radar and LiDAR, radiometer, scanning LiDAR, ceilometer, microbarograph, and ten meter meteorological tower.

Site 15 is adjacent to (500 to 1,000 feet from) existing turbines at the 217 turbine Biglow Canyon Wind Farm. Vaisala managed equipment at Site 15 would include two 10 meter towers, two 20 meter towers and 13 sonic anemometers placed on the towers, all from UND. The towers would be placed on new concrete pads with guy wires attached to concrete anchors totaling 39 cubic feet of concrete per tower. There are three residences within 1,000 to 2,000 feet of the proposed towers. NOAA equipment at Site 15 would include a three meter tower. PNNL equipment at Site 15 would include six, 3 meter towers and three sonic anemometers. NREL equipment at Site 15 would include a sonic anemometer. ANL equipment at Site 15 would include nine sonic anemometers, a 2.5 meter tower, a hygrometer, an albedometer, a net radiometer, a prop and vane anemometer, a rain gauge, and two temperature and humidity



probes. Due to the presence of the existing 217 large scale wind turbines, the placement in agricultural fields, the temporary and small scale nature of the towers and minimal ground disturbance due to installation of the small towers, DOE has determined there would be no effects to sensitive resources at Site 15.

All the equipment associated with the WFIP2 award would be located at the proposed field sites for a duration of 12-18 months. All of the proposed field sites would have a land use agreement in place and would obtain all required permits prior to installation. At the end of the proposed project all equipment would be removed, including any concrete foundations and anchors.

Power for the different pieces of equipment, with the exception of Site 11, would be supplied by batteries contained within the equipment and standard plug in power cords. The equipment proposed for Site 11 would require approximately 100 feet of trenching through previously disturbed ground to run conduit and a power line from an existing cellular facility to the two pieces of project equipment.

Equipment placed on Site 10 and Site 14 would be approximately .5 miles from properties currently listed on the National Register of Historic Places. The two field sites would be located at two operational airports and would not be visibly distinguishable from other pieces of equipment and buildings already existing at the airports; therefore, DOE has determined that there would be no effects to historic properties.

Equipment placed at Site 4, Site 9 and Site 10 would be located within potential habitat for the USFWS candidate species, Washington Ground Squirrel. Two of the three field sites would be located at operational airports on previously disturbed land, and one site would be located in an established agricultural field next to a road with no ground disturbance expected at any of the sites; therefore, DOE has determined that there would be no effects to Washington Ground Squirrel as a result of the proposed project.

After a review of the USFWS species occurrence map for the candidate species, Greater sage grouse, it is very unlikely that there would be any encounters between the proposed project locations and Greater sage grouse. Further, the equipment associated with the proposed project would be located at airports, on agricultural fields, and at other previously disturbed locations which do not provide suitable habitat; therefore DOE has determined that there would be no effects to Greater sage grouse as a result of the proposed project.

Based on review of the project information and the above analysis, DOE has determined that the proposed activities would not have a significant individual or cumulative impact to human health and/or environment. DOE has determined that the proposed project is consistent with actions outlined in DOE categorical exclusions A9 "Information gathering, analysis, and dissemination" and B3.1 "Environmental monitoring" and is therefore categorically excluded from 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/NSA providing either a NEPA clearance or a final NEPA decision regarding the project.

Prohibited actions include:

Relocation of instruments to currently unknown sites as described in the attached SOPO (DE-EE0006898.0001) under Task 4, Subtask 4.2 – "Coordinate and carry out instrument maintenance and potential relocation."

This restriction does not preclude you from:

Task 3 – "Deploy Instruments"

Task 4, Subtask 4.1 – "Monitor instrument operations and data accumulation and sharing with the DOE A2e Data Archival and Portal team"

Maintenance activities as described in the attached SOPO (DE-EE0006898.0001) under

Task 4, Subtask 4.2 - "Coordinate and carry out instrument maintenance and potential relocation" for the field sites reviewed in this NEPA determination.

Task 4, Subtask 4.3 – "Observe and catalog events which drive forecast error on the 0-15 hour and day ahead time scales and case studies of high potential value for further analysis"

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.

Insert the following language in the award:

You are required to:

The recipient is required to submit site specific information to DOE for additional NEPA review for proposed sites where equipment would be relocated.

Note to Specialist :

Wind Energy Technologies Office

This NEPA determination requires a tailored NEPA provision. Please see above.

Review completed by Logan Sholar on 7/15/2015

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

NEPA Compliance Officer Signature: \_\_\_\_\_

Electronically  
Signed By: Lori Gray  
NEPA Compliance Officer

Date: 7/15/2015

**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.
- ☐ 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: \_\_\_\_\_

Field Office Manager

Date: \_\_\_\_\_