

PMC-EF2a

(20402)

**U.S. DEPARTMENT OF ENERGY
EERE PROJECT MANAGEMENT CENTER
NEPA DETERMINATION**



RECIPIENT: Alaska Energy Authority

STATE: AK

PROJECT TITLE : Alaska Wind Energy Research Project (formally "St. Paul Wind Technology Development Project, Phase 2")

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
CDP	DE-EE0002393	GFO-0002393-001	GO2393

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:

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| 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.) |
| B2.2 Building and equipment instrumentation | Installation of, or improvements to, building and equipment instrumentation (including, but not limited to, remote control panels, remote monitoring capability, alarm and surveillance systems, control systems to provide automatic shutdown, fire detection and protection systems, water consumption monitors and flow control systems, announcement and emergency warning systems, criticality and radiation monitors and alarms, and safeguards and security equipment). |
| B3.1 Site characterization and environmental monitoring | 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. |

Rational for determination:

DOE is proposing to provide funding to AEA for Phase II tasks that would focus on modeling and analyses to determine the best performing wind energy systems for Alaska. Activities would involve upgrades to computer modeling/monitoring systems and the installation of meteorological instrumentation. This Phase II represents a change from activities originally proposed under Phase II. The currently proposed tasks include:

- 1) Upgrade the HOMER wind-diesel-solar hybrid modeling software;
- 2) Long term meteorological tower studies for icing impacts and turbine performance over extended periods of operation;
- 3) Performance data collection and data management for remote power systems; and
- 4) Alaska arctic evaluation of a LiDAR wind detection system.

For Task 1 AEA is proposing to upgrade their HOMER wind-diesel-solar hybrid modeling software - a computer system that would assist public efforts to complete analyses of wind-diesel systems in Alaska. The software would be

beta tested and then made available for public download. All software analyses would be completed in an existing computer laboratory type environment.

Task 1 involves only computer modeling, software upgrades and desktop studies. These actions are consistent with actions defined in DOE categorical exclusion A9 "information gathering".

Task 2 activities would involve refurbishing and installing two long-term met towers to quantify how icing seen in met tower studies translates to actual turbine performance. This task involved refurbishment of one met tower and installation of a new met tower, each at different sites, as described below.

Bering Straits Native Corp site - AEA is proposing to refurbish and install new monitoring equipment on an existing met tower in the northwest area of Nome, Alaska. This met tower is currently owned by Bering Straits Native Corporation, who also owns the wind farm and two additional met towers collocated in the same area. DOE and cost-share funding would be used to purchase replacement instrumentation, wiring, data loggers and other components to allow data collection. DOE funding would support two years of data collection to establish a performance baseline for a future long-term studies.

Unalakleet wind farm site - AEA is proposing to install a new met tower at the Unalakleet wind farm owned and operated by the local utility. The farm has thirty-six Northwind 100kw rated turbines and several existing met towers on site. Project funds would be used to purchase, ship, and install a new 34-meter met tower at the site. Funds would also be used to purchase replacement instruments, wiring, data loggers, and other components to allow data collection. A met tower was previously located at this site and the new one will be placed in the same location. The area has been substantially disturbed by the installation of the wind farm and no known archeological resources reside in the area.

The Alaska State Endangered Species List currently includes two birds; the Short-tailed Albatross and the Eskimo Curlew. AEA is in the process of consulting with the Federal Aviation Administration (FAA) and the US Fish and Wildlife Service (USFWS) to ensure no T&E Species would be affected and that the met tower heights are in compliance with federal aviation regulations.

DOE has determined that the impacts associated with the installation of monitoring equipment and refurbishment of an existing met tower at Bering Straits Native Corp wind farm site would be negligible and the activities are consistent with DOE categorical exclusion B3.1(b) "site characterization and environmental monitoring; installation of field instruments".

Installation of the met tower at the Unalakleet wind farm is consistent with DOE CX B3.1(h) "site characterization and environmental monitoring; installation of met towers and associated equipment". However, this determination is conditional pending the submittal of FAA compliance and completion of consultations per Section 7 of the Endangered Species Act.

For task 3, AEA is proposing to allocate funds to further develop and field-test of its Remote Data Acquisition Unit (RDAU). Funds would be used for hardware acquisition, software development, and to install components into existing powerhouse facilities. The RDAU consists of an electrical interface that would connect to the wind farm powerhouses throughout the State.

This task involves only computer modeling, software/hardware upgrades and desktop studies. These actions are consistent with actions defined in DOE categorical exclusion A9 "information gathering" and B2.2 "installation of remote monitoring equipment" (in existing structures).

For Task 4, AEA is proposing to purchase a LiDAR (Light Detection and Ranging) system and then conduct studies to evaluate this form of data collection as an alternative to guyed meteorological towers. AEA is proposing to deploy the LiDAR at two different sites to gather winter period data, as described below.

Site 1 - Eva Creek Wind Farm is located 14 miles from Healy, AK at the top of the 10-mile Ferry mining road. Eva Creek is currently the largest wind farm in Alaska. The LiDAR would be placed adjacent to an existing free-standing 80 ft. met tower and collect monitoring data for approximately 2-3 months.

Site 2 - Black Rapids Lodge (private property) or Murphy Dome Air Force Station which is a closed United States Air Force General Surveillance Radar station. It is located 20.4 miles (32.8 km) west-northwest of Fairbanks, AK. The LiDAR would be used for 4 -5 months.

No construction is necessary for the LiDARs. They would be secured in place via three anchor pins, if necessary. Installation activities would be designed in conformance with applicable requirements and use best management practices to limit the potential effects of any resultant ground disturbance. All sites have access via road and/or via snowmobile throughout the study period.

Task 4 activities would involve minimal ground disturbance and short deployment periods. DOE has determined that this task would have negligible impacts on the human and natural environment and is consistent with DOE categorical exclusion B3.1(b) "site characterization and environmental monitoring; installation of field instruments".

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:

All required federal consultations, including but not limited to Section 7 of the Endangered Species Act and/or Section 106 of the National Historic Preservation Act, must be completed prior to DOE authorizing funds for the purchase and construction of the met tower at the Unalakleet wind farm site. In addition, verification of FAA compliance must be submitted prior to the release of funds for the Unalakleet wind farm met tower.

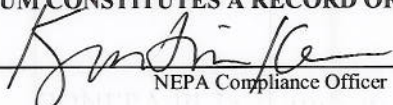
The Alaska Energy Authority, their subcontractors, and sub-awardees are restricted from purchasing or constructing met towers and all site preparations for Task 3 (Unalakleet wind farm site) until all consultations are complete and notification has been received from DOE. The DOE Contracting Officer will notify the recipient, in writing, when the consultations have been completed and of any conservation or mitigation measures that must be implemented for all activities listed in above.

Note to Specialist :

NEPA review completed by Laura Margason on July 3, 2013.

This NEPA determination completes the reviews necessary for Phase II, but the purchase and construction of the met tower proposed in Task 2 is conditional pending successful completion of consultations with the USFWS per DOE's Section 7 requirements under the Endangered Species Act. Please ensure this condition is part of the NEPA provision of the award.

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature: 
NEPA Compliance Officer

Date: 7/3/2013

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: _____

