

PMC-EF2a

(20402)

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



RECIPIENT: WindLogics Inc

STATE: MN

PROJECT TITLE : A Public/Private Partnership for Improving Short Term Wind Energy Forecasts and Quantifying the Benefits to Utility

Funding Opportunity Announcement Number	Procurement Instrument Number	NEPA Control Number	CID Number
DE-FOA-0000343	DE-EE0004421	GFO-0004421-001	0

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 (including, but not limited to, literature surveys, inventories, audits), data analysis (including computer modeling), document preparation (such as conceptual design or feasibility studies, analytical energy supply and demand studies), and dissemination (including, but not limited to, document mailings, publication, and distribution; and classroom training and informational programs), but not including site characterization or environmental monitoring.
- B3.1** Onsite and offsite site characterization and environmental monitoring, including siting, construction (or modification), operation, and dismantlement or closing (abandonment) 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. Activities covered include, but are not limited to, site characterization and environmental monitoring under CERCLA and RCRA. Specific activities include, but are not limited to:

Rational for determination:

WindLogics, in St. Paul, Minnesota, is proposing to use federal funding to identify and quantify the benefits of improved National Oceanic and Atmospheric Administration (NOAA) foundational weather forecasts when applied to wind energy forecasting. Improved weather forecasts from NOAA would result in more efficient integration of wind energy forecasts on power grid system operations.

The proposed project would provide additional meteorological data to NOAA over a large geographical area in the upper Midwest/Northern Plains. The goal would be to combine NOAA's High Resolution Rapid Refresh (HRRR) computer model and WindLogics' (MeRAF) computer model with real-time data from existing met towers to improve short-term weather forecasts. WindLogics would also quantify the economic benefits of forecast improvements on power system operations in the Midwest Independent System Operator (MISO) operating area, and power system operations in general.

Tasks Include:

PHASE 1 Data Acquisition and Transfer

- Task 1.0 Identify prospective towers
- Task 2.0 Identify unawaked permanent towers
- Task 3.0 Identify a subset of turbine nacelle data at each operating wind plant
- Task 3.1 Provide real-time hourly data to NOAA from two WindLogics-owned and operated SODARs
- Task 3.2 Real-time tower data provided at NextEra's operational wind plants, where available
- Task 3.3 Real-time data provided for as much as our system will allow of NextEra nacelle winds
- Task 4.0 Verify full functionality
- Task 5.0 Deployment of Equipment
- Task 5.1 Re-instrument met towers
- Task 5.2 Deploy SODAR
- Task 6.0 Establish real-time communications
- Task 7.0 Real time ingest from database used to gather large quantities of information from large scale systems
- Task 8.0 Establish data feed from WindLogics to NOAA
- Task 9.0 Confirm that towers from subcontractors are reporting data

PHASE 2 HRRR Ingest

- Task 1.0 Establish HRRR model data from NOAA to WindLogics
- Task 2.0 Ingest and convert HRRR to MeRAF at the WindLogics Grand Rapids site

PHASE 3 Forecast Development

- Task 1.0 Establish National Weather Service (NWS) forecast for HRRR

Task 2.0 Extract training variables
 Task 3.0 Train forecasts including HRRR input
 Task 4.0 Run HRRR forecasts in real-time
 PHASE 4 Forecast Assessment
 Task 1.0-2.0 Compile statistics for HRRR versus non-HRRR forecasts for Quarters 1-2 of project
 Task 3.0 Interim Forecast Quality Review
 Task 3.0-4.0 Compile statistics for HRRR versus non-HRRR forecasts for Quarters 3-4 of project
 Task 5.0-8.0 Compile statistics for high impact weather events for Quarters 1-4 of project
 Task 9.0 Power Forecasts for Data Denial Days
 PHASE 5 Economic Analysis
 Task 1.0 Subcontractor-provided economic analysis
 PHASE 6 Project Review
 Task 1.0 Interim Reporting
 Task 2.0 Final Report
 Task 3.0 Project Management and Reporting

In Phase 1, Task 1.0-3.0, WindLogics would identify prospective met towers and identify a subset of turbine nacelle data to be used in their fleet for data collection. In Task 4.0, WindLogics would verify the functionality of the existing instruments including nacelle data, tall met towers and SODARS. Repairs would be made as necessary. In Task 5.0, WindLogics would deploy equipment. In Task 5.1, WindLogics would add configure data loggers and solar power source to the existing met towers. In Task 5.2, WindLogics would co-locate two SODAR units with NOAA profilers. Because these two sites have not yet been selected and site specific information cannot be provided at this time, Task 5.2 is unallowable. In Task 6.0-9.0, WindLogics would assimilate the acquired data for use in numerical weather modeling by NOAA. Windlogics would verify that all contracted met towers are delivering data to NOAA.

In Phase 2, Task 1.0-2.0, WindLogics would develop the route for transfer of computer model from NOAA's HRRR to WindLogics' MeRAF to be analyzed and created into wind energy forecasts.

In Phase 3, Task 1.0-4.0 WindLogics would use the extracted NOAA HRRR forecast variables to be combined with the actual power production at each wind plant in order to train a machine learning system to create wind plant power forecasts.

In Phase 4, Task 1.0-9.0, WindLogics would analyze the results of the computer models and complete quality reviews.

In Phase 5, Task 1.0, WindLogics would hire a subcontractor to perform an economic and operational analysis on the impacts of the improved wind power forecasts.

In Phase 6, Task 1.0-3.0, WindLogics would submit quarterly project management progress reports and a final report upon completion of the study.

In view of the information provided by the State and the recipient, DOE has determined that the impacts related to Phase 1, Tasks 1.0-5.1 and 6.0-9.0 and Phase 2-6 of the proposed project are anticipated to have negligible effects on the human and natural environment. Phase 1, Tasks 1.0-5.1 and 6.0-9.0 and Phase 2-6 are consistent with actions outlined in A9 (information gathering) and B3.1 (environmental monitoring) and are, 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/NNSA providing either a NEPA clearance or a final NEPA decision regarding the project.

Prohibited actions include:

Phase 1, Task 5.2

This restriction does not preclude you from:

Phase 1, Task 1.0-5.1 and Task 6.0-9.0 and Phase 2-6.


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 :

Prohibiting Task 5.2 requires a \$65,000 hold, pending recipient submittal of SODAR information before DOE can make a final determination.

EF2a prepared by Cristina Tyler on 12/20/2010.

SIGNATURE OF THIS MEMORANDUM CONSTITUTES A RECORD OF THIS DECISION.

NEPA Compliance Officer Signature: 
NEPA Compliance Officer

Date: 1/13/11

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: _____