

FINAL Technical Progress Report

Project Title: FY08 DOE CRO WPA Omnibus Award
MT Wind Power Outreach

Date of Report: January 30, 2012

Covering Period: Final Report

Recipient: MT Dept Environmental Quality

Award Number: DE-FG36-08GO48023

Working Partners: NA

Cost-Share Partners: None

DOE Project Team: NA

Program Manager: Dwight Bailey

Project Objective: The objective of this grant was to further the development of Montana's vast wind resources for small, medium, and large scale benefits to Montana and the nation. This was accomplished through collaborative work with wind industry representatives, state and local governments, the agricultural community, and interested citizens. Through these efforts DEQ was able to identify development barriers, educate and inform citizens, as well as to participate in regional and national dialogue that will spur the development of wind resources.

Background: The scope of DEQ's wind outreach effort evolved over the course of this agreement from the development of the Montana Wind Working Group and traditional outreach efforts, to the current focus on working with the state's university system to deliver a workforce trained to enter the wind industry.

Status: DEQ requested and received a time extension to this grant agreement, extending the deadline until December 31, 2011.

University System Coordination: Montana's State Energy Office collaborated with Montana State University (MSU) Wind Application Center (WAC) and five state Colleges of Technology. The focus was working with the universities to provide wind site-assessment software for classroom training. The project also included training of instructors to use the program and teach college students. The WAC became the knowledge base for this software and provided technical support and on-going education to the participating satellite Colleges of Technology. These collaborations supported development of educational programs for wind technicians and engineers.

The State Energy Office also contracted with the MSU Wind Application Center (WAC) for the acquisition of the Windographer wind site-assessment software for classroom training and 130 seat licenses were purchased. Mistaya, a software vendor, provided training for the university and Colleges of Technology. The training was held in Bozeman at MSU on November 17th and at the MSU-Great Falls campus on November 18th. Mistaya agreed to permit video-recording of the training as a tool for future training, including annual courses and refresher sessions for participating institutions. This software was incorporated into wind technician courses by educators and used by students in wind educational courses at five Montana State University locations including: MSU-Bozeman, MSU-Billings, MSU-Havre, Montana Tech-Butte, and Great Falls College of Technology.

Six 20-meter meteorological towers along with miscellaneous sensors and data acquisition systems were transferred from the state to the universities to support student teaching programs. The WAC also received three 30-meter meteorological towers through the National

Renewable Energy Laboratories (NREL). This equipment was used to teach students to install and maintain meteorological towers and then collect and analyze the data to characterize feasibility of wind farm or stand-alone turbine production capacity. In the future, the state plans to contract with universities to obtain state land wind resource characterization services.

Wind for Schools Program:

DEQ supported the Wind for Schools (WFS) program. DEQ contracted with the National Center for Appropriate Technology (NCAT) to visit the ten schools participating in Wind for Schools and six other potential schools. NCAT provided DEQ with a report on the information for each school. In addition, DEQ provided technical and program assistance to the Montana Wind for Schools coordinator.

Web Resources:

The state's website hosts wind data from 38 sites distributed across the state; these data were measured from 10 to 50-meter tower heights:

<http://www.deq.mt.gov/energy/renewable/windweb/winddata/default.mcpx>

The state maintains eight active wind measurement systems and/or supports data reduction for these systems. This data was available along with NREL's wind maps to help characterize potential wind sites for residential and commercial development. Additionally, the WAC also hosted wind data collected from university meteorological towers.

Installed Capacity:

The installed residential wind capacity in Montana is estimated to be about 500 kW nameplate capacity. Installed commercial wind capacity in Montana is currently about 375 MW nameplate capacity and is anticipated to expand to about 575 MW by the end of 2012.

Net Metering Policies:

The investor-owned utilities offer net metering for wind systems under 50kW capacity, using an annual net metering period. Twenty-five of the rural electric cooperatives each have adopted a net metering policy. Most of the electric cooperatives allow net metered interconnections of renewable energy systems up to 10kW capacity and most interconnection agreements are for an annual net metering period.

Finance Options:

To promote small-scale renewable energy production, the state offers a low-interest alternative energy loan program. ARRA funds were deposited into that program in 2010 to supplement state fees and allowed the state to participate in additional projects. The maximum loan amount was \$40,000, although ARRA loans were allowed up to \$100,000. In 2010 this loan program provided Montana residents with more than \$429,000 in loans for wind projects totaling 37kW installed capacity. Montana also offered state property and income tax incentives for wind systems. More details about the State of Montana's loans, tax credits, and other wind promotional efforts are viewable on the state's website:

<http://deq.mt.gov/Energy/Renewable/WindWeb/default.mcpx>

DEQ sponsored three workshops to help agricultural producers and rural small businesses take advantage of the USDA REAP program for wind and other renewable energy and conservation projects. The workshops were held in Missoula, Billings, and Havre and had more than 120 participants. Presentations at each workshop featured wind projects on the ground, and presenters fielded questions about wind installations.

Technical Assistance:

DEQ staff fielded calls from more than 100 individuals over the course of this contract concerning small (1kw – 50kw) projects, and over 20 calls from landowners interested in developing larger projects.

Conclusion:

Montana leads the nation in wind energy power potential and the state is at the center of North America's wind heartland. Montana is the fourth largest state, but is number one in the nation for wind speed (Class 3 and above), available on a wide expanse of federal, state, and private lands. Four major industrial-scale wind projects have gone on line in Montana since 2005, moving Montana from a ranking of 50th to 15th in the nation in wind energy production. The support Montana received from the WindPowering America program was instrumental in allowing the state to convene the working group that focused on policy and transmission issues for commercial wind farms, provided technical assistance for small, distributed generation projects.