

Tribal Renewable Energy - Final Report

Project Title: Fort Peck Reservation Wind Project

Covering Period: **October 2004 to September 30, 2006**
Date of Report: August 15, 2007

Recipient Organization: Assiniboine Sioux Tribes of the Fort Peck Reservation

Award Number: DE-FG36-03G013120, A004

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(through the Tribal Council and Mr. Thomas {Stoney}
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Executive Summary

The research area adds to the understanding of the area investigated by installing two 50kW Wind Turbines in a distributed generation project to save money by reducing the annual bill from the local utility. These turbines have been producing power and reducing the kWh consumed at the Tribal Headquarters Building for approximately 11 months. The Turbines are almost one year old and the Tribe is conducting regular maintenance checks and inspections to keep the Turbines in good working order. These Turbines are the impetus for the development of an Energy Department to serve as the focal point for wind development on the Reservation and to provide management for the business side of wind energy, (i.e. green tag sales, O & M contracts, and Power Purchase Agreements). Additionally the offices serves as the entity responsible for Renewable Energy Education. The turbines will be used as an example of renewable technology actually being used on the reservation. The turbines have also served to let the Tribe know the full range of systems and processes that are needed to manage a wind project. The lessons learned are invaluable.

Comparison of actual accomplishments with the goals and objectives of the project.

This project has changed its scope of significantly since the initial application. The originally plan was for the installation of a single 600 kW wind turbine. Yet, the scope of the project originally envisioned could not have been accomplished with the funding made available. The project was significantly scaled down to accommodate the funding restraints and to meet the State of Montana Public Service Commission's requirements for net bill metering. Additionally, another reason for the departure from the scope was the original location of the Turbine. The original conception was close to the river, but the Tribal Fish & Game, and Environmental Departments raised concerns and the project was never given the internal authorization it needed to begin construction. Not until September 2005 did the project fully get underway.

Summarize Project Activities

January 2004 – October 2005

The original objective was to buy and install a 660kw Vestas V-47 Wind Turbine at the Tribal Building. The resulting savings from the electricity generated were planned to support a workforce-training program, sponsored by the Tribes, Fort Peck Community College, and A & S Tribal Industries with green tags to be sold at retail and support community development as well as maintain the turbine. The Project was stalled until NEPA compliance could be achieved.

May 2006

To meet the requirements of available funding, address environmental concerns, and comply with the Montana State net metering requirements, the project was refocused. The objectives were to buy, install, and operate two Entegrety EW15 50-Kilowatt wind turbines close to Fort Peck Community College and the Tribal Building, located in Poplar, Montana. The estimated 363,000 kilowatts of power generated by these turbines will reduce the electrical cost for the Tribal Building and The BIA Administration Building.

June 1, 2006 - September 30, 2006

The Tribe completed the project and two 50kW Turbines were commissioned and the Tribe had its first Wind Project completed and a distributed generation project.



The picture above shows the foundation being constructed for one of the towers, July 2006.

Construction continued through the summer of 2006 with both towers being commissioned in September of 2006.



The Turbines are still operational and have been running for approximately 1 year.

The Tribe contracted with H & H Enterprises out of Billings, Montana as the developer of the project. The construction for the Turbines (foundation, piping, drainage) was originally proposed to be completed by Fort Peck Community College students in the Building Trades program. Because the construction was taking place during the Summer Break, students were not available. H & H Enterprises took on the oversight of the installation (construction of the foundations, supporting structures) for the Turbines. This work was completed by Fort Peck Tribal Facilities employees and contributes to the overall in-kind donation to the project on behalf of the Tribe.

Once the foundation construction was complete, H & H Enterprises had two EW15 Turbines delivered with a rated output of 50kW, with electromagnetic aerodynamic tip breaks, two 80 foot three leg SSB Lattice Towers (Radian Communication Services, Inc.) and two 480v to 280v 3-phase transformers rated for 75KVA. H & H Enterprises supervised all electrical connections for the Wind Turbines. The Turbines are under warranty through September 2007. See attached for a schedule of activities.

These products are on the Multiple Award Schedule (GS-07F-6089R) GSA - Federal Supply Schedule 056 (Building and Building Materials / Industrial Services and Supplies).

A computerized monitoring system was installed in November of 2006. The Turbines are connected to a Website that monitors the output, wind speed, and various aspects of the Turbine Performance. This website is part of the overall data infrastructure of the Tribe and is protected by firewalls. Access to these websites is an ongoing issue for the O & M contractor.

The impact of the Turbines on the electric bills and the amount of money saved is much less than originally anticipated. The Tribe wanted to apply the money it saved back to one of its Tribal Companies to assist in paying for certifications for employees. The savings are being applied to the O & M contract for the Turbines. The newly formed Energy Department has been tasked with quantifying the amount of money actually being saved per month.

An annual maintenance plan is being developed for the Turbines as well as the Green Tags associated with the production. We are actively seeking the sale of these tags to supplement the funding stream of the towers.

These two turbines are still considered Phase I of the Tribe's overall Wind Development Strategy.

Identify Products developed under the award and technology transfer activities.

There are no publications associated with the Grant, no new technologies or techniques, inventions, patent applications, licensing agreements, physical collections, audio, video, software, netware, models, educational aid or curricula, instruments, or equipment. This grant did not involve any computer modeling.

Websites

The Tribe has two websites developed as part of this project that monitor the output from each Turbine. The addresses for these sites are:

South Tower: 192.168.100.79

West Tower: 192.168.100.78

The websites are connected to the electronic monitoring system of the Turbines. The Manufacturer of the Turbines, Entegri Wind has the programming passwords. The Tribe is able to shut down the turbines from the website, but the individual must have access beyond the firewall.

Collaborations

By developing the Fort Peck Wind Project the Tribe is now participating in the Wind/Hydro Integration Work Group of WAPA. The Tribe also applied for a Clean Renewable Energy

Bond allocation from the IRS to build a 1MW project in its Northeast region of the Reservation. The Tribe is forming a Tribally owned utility as a result of the Wind Project.

Task Schedule

Task Number Per Statement of Work	Title or Brief Task Description	Task Completion Date				Progress Notes
		Original Planned	Revised Planned	Actual	Percent Complete	
1	Acceptance of Amended Proposal for funding	2/28/2006		5/12/2006	100	Approval of the amendment was signed by the Contracting Officer on 5/12/06
2	Funding from the Department of Energy Secured	Completed			100	Approval of the amendment was signed by the Contracting Officer on 5/12/06
3	Wind turbine order placement	3/15/2006		5/4/2006	100	Tammie Lawler lifted NEPA restriction 4/21/2006, allowing the tribe to make down payment on the turbines
4	Foundation construction	5/1 thru 15/2006	5/1 thru 6/8/2006	6/2006	100	Completed
5	Delivery of wind turbine	9/1/2006	7/5/2006	7/2006	100	Completed
7	Installation of wind turbine	9/4 thru 18/2006	7/6/ thru 7/14/2006	8/2006	100	Completed
8	Official Commissioning and Dedication of turbine	10/10/2006	7/14/2006	9/1/2006	100	Completed
9	Realize first months utility savings from the project	11/1/2006	8/24/2006		0	Under Review
10	Start funding socioeconomic programs	11/15/2006	9/1/2006		0	Under Review