Investing in Renewable Energy

HILLTOP FARM COOPERATIVE WIND POWER PROJECT

Project Description
Installed 2.0 megawatts (MW) of wind generation near Edgerton, Minnesota. Hilltop’s goals for the project were to provide environmentally clean power generation through wind harvesting, maximize the potential for farm property in Minnesota and establish an educational scholarship program from wind generation profits.

Methodology
- Prepare wind study to examine the general wind in the area and calculate wind power production estimates
- Identify appropriate turbine model
- Order turbine and prepare site
- Erect wind turbine

Executive summary
Hilltop Power constructed a 2.0 MW DeWind D8.2 wind turbine in Pipestone County. Due to a high demand for wind turbines, turbine prices increased significantly and were not available for small wind development projects, which resulted in a significant project delay and increased cost. The DeWind D8.2 is an upwind turbine with pitch control and horizontal axis, and operates with a variable rotor speed. Therefore it is capable of producing electric power efficiently at low wind speeds and utilizing the energy of gusts without overloading the grid or turbine components. The turbine was commissioned on February 11, 2009.

Grantee: Hilltop Power LLC
RDF Funding Cycle: 2nd
Project Funding: $1,200,000 RDF Grant (Total project cost $3,879,125)
Project ID: EP-26
RDF Mission: To increase renewable energy market penetration, assist renewable energy projects and companies, and support emerging renewable energy technology through research and development.

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**Benefits**

- 2.0 MW of generation capacity for clean, renewable electrical power

- Interconnection with a 21.5 kV distribution line allows power to be used on the local grid and does not have to be shipped on congested transfer lines out of the Pipestone area

- Minnesota labor was used in every possible application from planning to construction

- Over the next 15 years, approximately $40,000 from electrical sales will be donated to an educational scholarship program

**Outcomes**

- Hilltop was the first customer for DeWind, a new U.S. manufacturer of wind turbines, which provided a showcase project, as well as potentially improving the market competition. DeWind has also been selected for a project in Willmar, Minnesota.

- Demonstrated the concept of cooperative use of farmland equity from an urban area to finance development of high wind resources on a rural farm

**Lessons learned**

- Community-based economic development projects should utilize the expertise of existing knowledge and experience in the wind industry by hiring experienced individuals

- Costs to erect a single turbine has become prohibitive unless grant money is involved. The soft costs, crane costs, and the difficulty to procure a single turbine make these small projects cost prohibitive

- The time lost during initial planning phases of the project (contracts, permits, etc.) can have a significant effect on many different aspects of the project

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