CASE STUDY:

The Urban Wind Turbine at Macalester College

By Melody Sakazaki, The Minnesota Project

On a breezy day in late April 2003, months of work came to fruition. A wind turbine, located near the football field on the Macalester College campus in residential St. Paul, went online.

The project itself is the result of an ongoing relationship between Xcel and the physical plant staff who have been working together for a long time on campus energy conservation efforts. When the college began to consider "green energy" options, Xcel suggested placing a wind turbine on campus. It was an opportunity for the company to learn more about wind power in urban areas and for the college to begin to power their campus with renewables.

The project, a joint effort between the college and Xcel Energy, is a small, 10-kilowatt wind turbine. Though this is a fraction of the total energy consumed by the campus, it is a step in the right direction. Macalester sees it as "a symbol that, as a campus, we need to get more environmentally conscious." It also allows students the opportunity to explore renewable energy first hand.

Project Snapshot:

Technology: 10 kW Wind Turbine
Cost: $45,000
Incentives:
- $30,000 from Xcel Energy
- 2003 graduating class gift

Benefits:
- Allows students to explore renewable energy first hand

It was also a joint effort in terms of cost. Xcel contributed about $30,000 for the turbine, with Macalester paying $15,000 for the installation. The 2003 graduating class is in the process of raising money for the installation costs and is expecting to contribute up to 40% of the installation costs.

The turbine is currently one of only two operating in St. Paul and perhaps even the entire Twin Cities metro area. Since urban turbines are so rare, the city does not have a zoning code that regulates their construction and operation. This fact created a slight hurdle for Macalester as they negotiated with the city for a permit to erect the structure. The zoning committee was overwhelmingly supportive of the project, unanimously approving the project, and providing a temporary 18-month permit. This gave Macalester time to erect and study the project and the city time to develop a zoning code relating to

CERTs Partners: Minnesota Department of Commerce, The Minnesota Project, University of Minnesota Regional Sustainable Development Partnerships, The Rural Minnesota Energy Board, Metropolitan Counties Energy Task Force, Resource Conservation and Development Council.

wind turbines. Luckily, the neighborhoods surrounding the campus have been very supportive of the project, and those that have expressed concerns consented after learning more about the turbine.

The college plans to share information through a website and a kiosk located close to the turbine. Information will include real time data on the energy being produced. During the late fall and winter months the turbine produced anywhere from 80-90 kwh per month which is an average of 3 kwh a day. The energy produced by the turbine is being used to help power the Science building, which is adjacent to the turbine. According to Mark Dickinson, Facilities Management Director of Macalester College, the turbine is generating less energy then anticipated but it is still a little premature to make any conclusions because the turbine has not been up for an entire year yet.

Macalester is leading the way in urban wind energy experimentation. Though the college has no formal plans for expansion, many hope that if this project is successful, that more wind turbines may pop up both on campus and off.

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