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- University of Minnesota Regional Sustainable Development Partnerships
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- Southwest Regional Development Commission
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CERTs FUNDERS

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CASE STUDY: WIND – NORTHEAST REGION

University of Minnesota Duluth’s North Shore Wind Study in Full Spin

By Dan Thiede, The Minnesota Project • January 2008

Northeastern Minnesota is not a region of our state usually touted for its wind resources, but a dedicated group of researchers are beginning to measure what they hope is the North Shore’s hidden wind energy potential. Dr. Michael Mageau, Assistant Professor of Environmental Studies at the University of Minnesota- Duluth and Director of the Center for Sustainable Community Development (CSCD), along with a handful of UMD students, are in the process of providing technical assistance to several community partners to help them assess their individual wind resources.

Mageau and his team are currently measuring the wind for a year, and will use this site-specific wind speed data to create a wind resource map for the entire region. Their data will then allow them to conduct wind development economic feasibility



Lutsen communications tower with wind monitoring equipment

studies for each of their community partners, and determine the direct, indirect, and induced economic impacts for wind development in Southern St. Louis, Lake, and Cook Counties.

Wind data included in the study will come from eight sites along the North Shore. CSCD installed six anemometers with data loggers at Enger Tower, Clover Valley Fire Tower, Finland Fire Tower, Hovland Fire Tower, Lutsen Mountain, and Grand Marais. The National Renewable Energy Laboratory installed anemometers and is monitoring at Grand Portage, while Northshore Mining’s weather station will be sharing its data from Silver Bay.

Some preliminary data was collected, but much of the first six months of wind monitoring was a bit patchy due to unforeseen complications. They had anemometer cups break in heavy wind, which made

their data loggers at those stations record zeros. The anemometers have now been replaced and data collection is in full spin. The other issue they ran into was the theft of a data logger. But Mageau and his team have moved past these setbacks and are excited to get a year’s worth of data from each site: “We were surprised to discover significantly more wind than anyone anticipated,” said Mageau. “After collecting several months of data we have found average wind speeds exceeding 17 mph at several of our windiest sites, and the data is looking quite encouraging!” They expect to be done with the monitoring portion of the project in June or July 2008.

Site	Height ft.	Avg. mph	Days
Enger	95	13.1	294
Clover Valley	110	14.3	243
Silver Bay	100	—	240
Finland	110	17.1	230
Lutsen	100	15.1	218
Grand Marais	100	13.6	206
Hovland	95	17.4	163
Grand Portage 1	30m	17.1	192
Grand Portage 2	50m	19.2	192
Grand Portage 3	80m	16.8	192

For more information, contact Michael Mageau, Director of the UMD CSCD, at mmageau@d.umn.edu

Project Snapshot

- Purpose:** To study the wind energy potential along Minnesota’s North Shore
- Technology:** APRS World Products anemometers and Madgetech Pulse 110 data loggers
- Grants:**
 - \$7,000 Northeast CERT
 - \$6,000 Northeast Regional Partnership (U of M)
 - \$14,000 UMD College of Liberal Arts (CLA)
 - \$6,000 UMD CLA Technology Fund
 - \$27,000 MN DNR Coastal Zone Program