

There's a lot of wind if you just climb high enough

Jane Howard

David Abazs is clever and brave. Other words might come to the minds of people who heard him speak at a Cook County Local Energy Project (CCLEP) presentation on small wind turbines at North House Wednesday, January 21, 2009: He installed a 120-foot wind tower and generator on his rural farm in Finland, Minnesota 15 years ago and had to climb to the top of it about 30 times to fix it within the first year or two. Fortunately, improvements in engineering have reduced the frequency of breakdowns.

"I don't know how many of you like to climb up a 120-foot toothpick – that was a new adventure for me," he said. With the area's shallow soil, grounding the tower was difficult, and lightning strikes were a significant source of trouble at first.

Abazs is an advocate of alternative energy. With a combination of 70% wind and 30% solar power, even people in the Northland can live off the grid. It ends up being much cheaper than buying power from the electric utility or heat from the fuel oil supplier, but it's not necessarily a simple way of life. As Abazs spoke about wind power, he sounded like a techie.

Wind power is not new to Cook County. Abazs spoke fondly of a still-standing windmill tower erected in Tofte back in the 1930s. He installed a small tower for Joseph and Mary Routh of Hovland and a large one at Wolf Ridge Environmental Learning Center with help from large equipment owned by Erie Mining Company. Things go wrong sometimes, however, and the core of Wolf Ridge's turbine fell off. Though it was rather large, Abazs said, the kids scouting around the grounds have not found it yet.

According to the evening's other speaker, Pete Skadberg of Winkelman's Environmentally Responsible Construction in Brainerd, homeowners' insurance covers damage from disasters like tornadoes, lightning, forest fires, and blowdowns at a reasonable cost of \$400 for a large system.

Skadberg's company sells numerous types and sizes of wind turbines, one that has been operating since the 1920's, he said. He guessed that a resi-

dential wind turbine would have a payback time of 15 to 20 years, but a business could see payback in as few as five to 10 years. The bigger the system, he said, the shorter the payback period. He said Germany is producing a significant amount of its electricity with wind power.

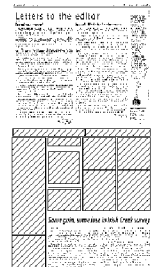
Skadberg explained the concept of "net metering" – if you generate more power than you use, the local power company must purchase the extra power from you at retail rates. IRS and Minnesota tax credits are also available to those who produce electricity. In the future, said Skadberg, people whose wind turbines are producing electrical power may be able to sell their excess power to locations around the country.

A common wind tower height is 120 feet, but bigger is better, said Skadberg. The minimum height is determined by the height of neighboring obstructions such as hills and trees and how far away they are from the tower. A small wind turbine should be useable for up to 40 years with some maintenance and rebuilding along the way, he said, and the life of a large tower is about 100 years.

Single small wind turbines make about as much noise as an air conditioning unit, and the noise level falls sharply with distance, Skadberg said. His slide presentation noted that "one acre is a good rule-of-thumb minimum property size for a small wind installation capable of powering a farm or large home."

Winkelman's wind turbines run from \$10,000 to \$150,000, and for a \$750 fee, they will do a site plan which includes contacting the utility company to discuss net metering, dealing with local ordinances, and obtaining needed permits. The company pays finders' fees to individuals who connect Winkelman's with customers. (Their website is www.ecowerc.com.)

Wind turbines raise property values, Skadberg said, but property owners cannot be taxed extra for having them. USDA grants are available for businesses like farms to install wind turbines. Power companies sometimes pay owners to allow schools to do educational presentations on site,



and the towers can also be leased for antennas.

Powering with wind, at least with small turbines, is appearing feasible in this area as long as the towers are high enough. A study of wind speed at the fire towers in Cook County, which reach as high as 110 feet, revealed an average wind speed of 14 to 19 m.p.h. In addition, wind turbines work well in cold air. Six people at the presentation identified themselves as Cook County business owners who would consider using wind turbines to power their businesses.

CCLEP co-chair Buck Benson said that Michael Mageau of UMD's Geography Department conducted the North Shore wind study over the last three years. A map of that study is available at North House and the courthouse. Another map of electric utility lines will be laid on top of the wind study map to find how close existing transmission and distribution lines are to the county's windy spots. Smaller towers can use the same type of distribution lines as residences. Installing transmissions lines needed for larger towers would cost about \$220,0000 a mile, said Benson.

Another UMD scientist, Gerald Niemi of the Natural Resources Research Institute, is doing a study of bird migration along the North Shore. He is trying to determine whether migration patterns are more prevalent along the shoreline, the Sawtooth Mountain ridgeline, or inland. His findings would be coordinated with any future wind power projects.

CCLEP has applied for a \$10,000 grant for wind testing equipment and consultation on three sites in the county. The project would include the

installation of a tower with an anemometer (to measure wind speed).

The tower-climbing man, David Abazs, may be going to greater lengths (or heights) in his pursuit for clean energy than many people would be willing to go. Buck Benson hopes that as more people become interested in alternative forms of energy production, technical expertise will become readily available for those who want to install it without knowing how to maintain it. Abazs and his wife Lise provide technical consultation on wind power and other types of alternative energy through their business, Round River Renewables (www.round-river.com).

"If you're doing it just for the money," said Abazs, "I'd say don't bother." He is doing it, he said, because he wants to support the development of technology that will be good for the environment.

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