

# Northeast CERT Meeting Agenda Notes

October 27<sup>th</sup>, 2006

10:00 am – 2:00 pm

Proctor Community Center (100 South Pionk Drive)

## *Meeting Objectives:*

- ✓ Learn about wind project development in Northeast Minnesota
- ✓ Share stories and ideas about project promotion and celebration
- ✓ Visit Proctor Public School's wind turbine

**Attendees:** Peter Harris, Nicole Hynum, Steve Kluess, Larry Nelson, Sandy Sweeney, Melissa Wenker, Janelle Stauff, Joel Haskard, Lissa Pawlisch, Honor Schauland, David Abazs, Derek Parendo, Tim Ollhoff, Jamie Juenemann, Kira Peterson, Lynn Wistrum, Tom Koehler, David Williams, Leo Wilenius, Ray Hatinen, Marvin Pirila, Lauri Isaacson, Chuck Goldsworthy, Diane Rauschenfels, Jean Sramek, BJ Kohlstedt, Mike Mageau, Dean Talbott, Brian Antonich, Okey Ukaga, Thomas Strom, Jack Johnson, Steve Robinson, Bill Hilty, Chris Reed, Joe Straley (36 attendees)

## **Announcements & Updates**

- Dave Abazs and his family used veggie oil to tour around the region and check out its energy sources; they hope to make a presentation about their adventure and findings soon.
- Dean Talbott reminded folks that the 17<sup>th</sup> Annual Energy Design Conference will be February 27<sup>th</sup> and 28<sup>th</sup> in Duluth: <http://www.duluthenergydesign.com/>. Also Minnesota Power has put out an RFP for community based wind power projects. Proposals are due March 2<sup>nd</sup>, 2007. For more information contact Dean Talbott at 218-722-5642 ext. 2843; [dtalbott@mnpower.com](mailto:dtalbott@mnpower.com) or Chris Reed at 218-496-5716; [reedenergy@frontiernet.net](mailto:reedenergy@frontiernet.net).
- Jaime Juenemann and his family are doing their part to spend down the state solar rebate by bringing 3 kW on line at their home in early October.
- Sandy Sweeney spoke about the Great Lakes & St. Lawrence Cities Initiative <http://www.nemw.org/glci/news.htm>. All sorts of communities around the Great Lakes share models for water and energy conservation that other cities can use: In Chicago they are refurbishing 105 fire houses with solar thermal equipment and energy efficiency upgrades and now have 160 buildings with green roofs. Toledo does methane gas recovery at many of their landfills. Toronto is looking at in wave cooling systems for downtown, using wave action for cooling of all downtown buildings. Minneapolis has a sustainability indicator policy where each department has to account for sustainability and is responsible for energy usage. Ann Arbor is working on LEDs for all their street lights. Duluth wants to improve the steam plant (built in 1932), so in December 2005 proposed to the Climate Trust that they would buy carbon credits for 15 years @ \$5/ton, for \$1 million total. Projects are now underway to insulate distribution lines in downtown, saving \$350,000/year and reducing coal demand by 20% for same output! On a

sad note, Sandy will be retiring soon... We'll miss you Sandy and don't be a stranger!

- Lauri Isaacson mentioned the CERTs Conference coming up January 16<sup>th</sup> and 17<sup>th</sup>: <http://www.cleanenergyresourceteams.org/conference-frommainsite.html>.
- Joel asked everyone to PLEASE sign up for the Minnesota Energy Challenge and show the state (and the other regions) how active CERT members are: [www.mnenergychallenge.org](http://www.mnenergychallenge.org)
- Peter Harris said that Wolf Ridge Environmental Learning Center <http://www.wolf-ridge.org/> is getting a real time connection for their energy data to get online through [www.fatspaniel.com](http://www.fatspaniel.com). They are also doing curriculum development and hoping to grab information from other CERT members. Also, the Minnesota Science Teachers Association <http://www.mnsta.org/> is focusing on energy issues this spring and they are looking for speakers.
- North Shore Community School finally closed out all of the financial books on their solar PV project. Hurrah! They anticipate that their next project might be wind.
- A series of regional forums called Green by Design presented by [Minnesota Green Communities](http://www.minnstate.edu/greencommunities/) and the [Minnesota Initiative Funds](http://www.mninitiativefunds.org/) will be held across the state, two in northern Minnesota. Topics of special emphasis will include: Increasing local energy self-reliance, Healthy homes, Protecting local water quality, Sustainable development planning, Natural resource preservation. For more information please visit: [www.greencommunitiesonline.org/minnesota](http://www.greencommunitiesonline.org/minnesota).
  - ✓ Monday, November 20, 2006 Brainerd, Cragun's Resort, keynote speaker: James Howard Kunstler
  - ✓ Tuesday, November 28, 2006 Grand Rapids, Sugar Lake Lodge, keynote speaker: Will Steger
- The Lake Superior Renewable Energy Fair will be Saturday, Sept 8<sup>th</sup>, 2007. They are becoming a 501 c3 and will continue to partner with SFA.
- The RC&Ds <http://www.mn.nrcs.usda.gov/partnerships/marcd/index.htm> will be showcasing projects to 40 non-profits. If you have ideas, submit them to Larry Nelson ([larry.nelson@mn.usda.gov](mailto:larry.nelson@mn.usda.gov)) or Steve Kluess ([steven.kluess@mn.usda.gov](mailto:steven.kluess@mn.usda.gov)).

## **Task Force Reports**

### *Education/School Initiatives and Projects*

Nicole Hynum presented the task force summary. Resources like those from the Department of Commerce, Windustry and the state fair's Eco Experience could be shared between schools, either via a template on-line or materials that could travel from school to school. Brian suggested people check out The Kid Wind Project: <http://www.kidwind.org/>.

The group talked about Proctor. Their Earth Education Committee will host an earth fair this spring that will tie in with the wind turbine's grand opening. They hope to attract community members and businesses to come in to present and display.

Two Harbors has a new high school designed by LHB <http://www.lhbcorp.com/> with highly efficient lighting and passive solar design. The building is 50% bigger but uses less energy than the old one did when it was vacant (!). They are now interested in adding renewables; they want technologies that people can see and touch. The U of M NE Regional Partnership worked with both Two Harbors and Finland on their projects.

#### *Community Initiatives and Projects*

Dave Abazs presented the task force summary.

- Carlton County SWCD is planning to develop a green office building and curriculum; they are looking for grants and the county may put in some dollars.
- Finland Community Center is moving forward with geothermal and has some funding for solar electric systems and a green roof.
- Old Washington School may be converted to apartments and a community gym. It is located in Esko, in Minnesota Power's territory, and it was suggested they do a commercial energy audit before possibly looking at solar or wind power.
- Electrician Tom Strom and residents in Ely are looking into local grid opportunities and seek assistance and partnership.
- Mark Thell is in the early stages of addressing biomass issues with sustainable harvesting of brush for methane and heating pellets.

#### *Energy Staffing Collaborative*

Dean Talbott updated the group about the collaborative which is an open dialogue between a variety of organizations who are all moving forward renewable energy and energy efficiency initiatives with some sort of staffing need. The idea is to figure out where our ideas compliment one another and how we might help one another rather than compete. Some recent successes in the region include \$10,000 to the Hartley Nature Center to help with staffing and the construction of the Eco Home at Hawk Ridge. This super efficient solar model home in eastern Duluth will be finished in February, and will be open for two years as a resource center.

#### **Meeting Focus: Wind**

*Northeast Minnesota Wind Resource – Mike Mageau, University of Minnesota Duluth*

Mike spoke about the Center for Sustainable Community Development's work to do site specific wind monitoring and communities economic feasibility study analyses based on wind data. They are shooting for 10 monitoring sites, and have seven right now: Spirit Mountain (Duluth), 150 foot tip up tower; Enger Tower – 80 feet tall, monitor is another 20 feet up; Clover Valley and Finland (both 100 foot tall fire towers), Grand Portage (Mount Maud, with bad set up had 14 mph winds), and three anemometers at Lutsen, Grand Marais and Maple Ridge on 140 foot tall communication towers. Mike said the anemometers have been using NREL guidelines. It was suggested he talk with Brad Stevens at the Energy & Environment Research Center (EERC) <http://www.undeerc.org/default.asp> to learn about the guidelines

needed to post data to their wind monitoring database. Mike and all are using the MagTech Pulse 110 anemometer w/ in-speed vortex, and a new set from the Department of Commerce can download information via cell phone and then compare information.

Other possible sites:

- Chris Hazelton from Harbor City school said they are doing monitoring on the top of their school and are looking at a Darius-style wind generator.
- North Shore Mining has been monitoring for years and have been contacted by Jaime and Peter already.

Finally, since Wind Logics built the new Department of Commerce wind maps, <http://www.state.mn.us/portal/mn/jsp/content.do?id=-536881350&subchannel=-536881511&sc2=null&sc3=null&contentid=536887066&contenttype=EDITORIAL&programid=536902421&agency=Commerce> they might be a good source for NE region data comparisons. <http://www.windlogics.com/>.

*Lunch & Guest Speaker: Wind Technologies, Scales and Steps to Project Development – Brian Antonich, Windustry*

**\*\*Note:** Brian's complete power point presentation will soon be available on the CERTs website. As such, we'll try to run through all of the details of his presentation but instead hit just the highlights.

Brian is the small wind program analyst and staff engineer at Windustry:

[www.windustry.org](http://www.windustry.org) Brian introduced the 3 types of wind development: large wind farms, distributed/dispersed wind energy (munis, public schools), and small turbines for a home or farm. Over the past 8 years wind technology has gone from Zond 500 kW machines to today's largest turbines, the Intercon 5 MW machine (Germany) and the largest in US being 2.5 MW machines from Clipper: <http://www.clipperwind.com/techspecs.php>.

The working definition of community wind is that a local entity has a significant financial stake in the outcome of the project (more than just landowner payments). Of the roughly 10,000 MW in the US, around 421 are viewed as "community wind," with Minnesota a leader in this realm.

Keys to a Successful Community Wind Project:

- Adequate wind resource – TOP PRIORITY
- Market for energy – someone to buy it
- Access to market – interconnection – think about curtailment issues in SW MN where they are generating more energy than the power lines can handle.
- Low cost financing – cheap money to pull it together
- Diverse project team – financial, legal, organizing

Several Steps to Develop a Small Wind Project (although Brian indicates it's slightly more organic than described here):

- Preliminary wind resource assessment
- Preliminary Economic Analysis – manufacturers energy chart – estimate of annual productions, total installed cost and your current energy bill
- Costs – work with your installer – different requirements for insurance if on-grid or off-grid
- Investigate potential installers – get list of recommendations, call Windustry. Ask how many projects they've done, check on certifications, building codes, electricians, etc. Ask if they will offer a maintenance contracts? Warrantee? Insurance? *Get multiple bids!*
- Site assessment – right site, productions estimate, itemized cost for work (should get each little item included in your installers price quote).
- Permits – educate your local zoning agency first. They might not have experience with this; you should bring information with you to answer their questions and concerns. *Educate them prior to the permit hearing and talk to you neighbors in advance!*
- Financing
- Machine siting – get it up high! Don't want turbulent wind cause you need good clean wind. It should be at least 30 feet above *everything* and remember: *trees grow.*
- Final System Design – tilt up towers (monopole and lattice) are cheapest alternative but not super tall; guyed lattice or free-standing lattice can go higher, but check on who has a crane in the area and how high they can go. Taller towers can impact maintenance costs as cranes are expensive to mobilize and you can encounter problems with road restrictions.

Brian then gave an overview of small turbines available in the United States (with great pictures in his presentation) and suggested the following websites for more information:

- [www.windustry.org/smallwind/default.htm](http://www.windustry.org/smallwind/default.htm) - shows how to do a small wind project
- [www.renewwisconsin.org/wind/windtoolbox.htm](http://www.renewwisconsin.org/wind/windtoolbox.htm) - Mick Sagrillo's website
- [www.dsireusa.org](http://www.dsireusa.org) – shows incentives available

Brian fielded a number of questions. When asked about lightening strikes, he said a seasoned installer will ground it properly, and it shouldn't be an issue. People asked if there were any breakthroughs in technology to go with lower wind speeds. Brian said there is lots of research and development in this area but it is hard to capture much energy at low wind speeds. Also, the American Wind Energy Association (AWEA) <http://www.awea.org/> is creating a certification process for small machines.

#### *Discussion: Garnering Community Buy-In*

The group talked about promoting & celebrating wind projects. Lissa focused on telling the right story to the right audience. Okey stressed insuring transparency and

the importance of a public process. Chris gave examples from Moorhead Public Services “Capture the Wind” program <http://www.mpsutility.com/capture.htm> about building partnerships and community ownership.

Peter mentioned the importance of imagery everyone can understand – like pile of coal you avoid using with one CFL. Images like these make a clean energy solution much more personal than just the price comparison between energy sources. BJ talked about involving students and teachers when celebrating renewable energy projects. Schools are there for learning, so we must make sure that students are informed and involved from the outset. Students wrote persuasive papers to the school board and then presented them. Students reviewed the grant to the EPA and they produced brochures to hand out at community celebrations. They also did a webpage and provide tours of the system.

It was noted that banking, law, school boards and superintendents and insurance folks had a lot of learning to do. They need mentoring from the right folks to get up to speed on clean energy opportunities.

#### *THE PROCTOR TURBINE!*

Finally, to celebrate the Proctor turbine, Brian Antonich presented a “Home Grown Energy” poster signed by Windustry staff and Northeast CERT members.

Then it was on to see the turbine! Diane, Derek and Joe Straley told the group about the 20 kW Jacobs turbine. The tower is 120 feet tall and is set in 65 feet of concrete padding. They have a maintenance contract with Joe to annually drain the old oil and grease the turbine. Derek said that it is used as a billboard to stress the cutting edge learning at Proctor, and math, physics, DECA and aeronautics classes will all have lessons that focus around the turbine. Derek and Diane also noted that Proctor just received a large National Science Foundation grant that will assist DECA and the marketing class to do a market analysis for building green homes in the area. Congratulations Proctor!

*Meeting adjourned @ 2:00 pm*