# Summary West Central CERTs Meeting

**Thursday, June 15th, 2006**
**Prairie Woods Environmental Learning Center**
**10:00 – 11:30 Tour of Prairie Woods – meet in Main Parking Lot**
**11:30 – 3:00 Lunch and Panel Discussions in Westby Observatory @ Prairie Woods**

Attendees: Al Boonstra, Al Cotter, Becky West, Bev Ahlquist, Bob Masters, Brian Gieseke, Brian Ross, Charles Hausladen, Chris Hetting, Cory Marquart, Dan Tepfer, Danielle Walters, Danna Gale Olson, Dave Opsahl, Dave Pederson, Dean Schmidt, Denny Jarosch, Dick Hagen, Dorothy Rosemeier, Gary Wertish, Graden West, Jamie Juenemann, Jean Masters, Jim Kosak, Joel Haskard, Jonathan Carlson, Karen Flaten, Kim Larson, Lissa Pawlisch, Mark McLaughlin, Marvin Rothfusz, Marilou Cheple, Mary Ann Scharf, Michelle Handlin, Mike Reese, Orville Moe, Phil Smith, Randy Hagen, Randy Nelson, Renae Shields, Robert Meyerson, Robert Ryan, Stan Simon, Steve Nelson, Steve Wagner, Steve Wearda, Sue Meyerson, Tim Pendergast, Tom Lorang, Tom Meium, Tom Sagstetter, Wesley Hompe (53 total)

***Tour of Prairie Woods***

*Tour of Indian Village*

Several of us went out to Indian Village to trace the history of four eras of Native Americans on the land. The village has wonderful interpretive signage. The four examples of what the shelters for these people would have looked like fit in well with our topic of sustainable building design.

*Tour of Administrative Building and related installations*

Dave Pederson was our gracious host at Prairie Woods and told the group about the Countryside corn burner, manufactured in Hutchinson, Minnesota: http://www.magnumfireplace.com/about_AES.cfm. The stove cost $2,200 and paid for itself in the first year; it burns about a bushel of corn kernels a day. The commercial corn-fired burner outside burns about six bushels a day. Dave also showed the group the 350-watt mobile solar panel system designed by University of Minnesota professor Paul Imbertson and student Stella Mandango on site. Once the small Jacobs wind turbine is installed Prairie Woods will be able to supply 60% of their own power needs. Dave thanked Kandiyohi Power Cooperative and Willmar Public Utility for their support of their renewable energy projects.

***Presentation of Proposals and Voting on Proposals***

*Kandiyohi County Economic Development Commission Proposal for a Small Wind Energy Guide – Bob Meyerson*

From their proposal… "The purpose of our project is to promote the implementation of small wind projects (under 40 kWh) in our area. We believe that wind energy is far more ecologically friendly than other forms of energy production. We feel this project will serve the dual purpose of raising awareness on a local basis of the feasibility of wind energy production and provide encouragement for larger scale projects. It will raise awareness of wind energy production feasibility by answering many of the questions that would-be wind energy producers are bound to ask: Where do I start? Whom do I contact? What will it cost? What is my return? What do I watch out for? It will help encourage larger projects by providing visual reminders of the possibilities of wind energy production."

Bob added that they intend the guide to provide practical information for people who might want to put up a turbine. They have assembled a large committee of individuals to write essays on

each of the required topics – each person focusing on his/her specialty. They will make the guide available through the Planning and Zoning office and CERT will pursue getting the guide up on the CERT website.

⇒ The team voted to support this project and provide their requested $1325.

*Kerkoven, Murdock and Sunburg School District Proposal for Energy Efficiency and Renewable Heating at Murdock Elementary School – Stan Simon*
From their proposal… "The purpose of this project is to investigate the possibility of improving energy efficiency and utilizing locally produced renewable energy at the Murdock Elementary School." Under this study they will conduct an energy analysis of the existing building and develop a list of cost effective energy conservation measures. Those requiring very little monetary investment will be implemented immediately.

They will also look into:

- modifying the existing heating system to burn corn, wood pellets, wood chips or other locally available biomass. This study will evaluate the economics of renewable energy utilization, taking into account the existing systems of heat distribution in the building, and the logistics of integrating with a new heat source.
- longer term capital improvements that would address ongoing future heating and cooling needs. (i.e., closed loop geothermal, solar assisted hybrid geothermal, wind assisted hybrid geothermal, as well as more traditional off peak electric or fossil fuel heating)

⇒ The team voted to support this project and provide their requested $3800.

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*(**Note:** Power point presentations from the speakers below will soon be available at www.cleanenergyresourceteams.org. What follows below are very brief descriptions of their talks.)*

***Energy Efficiency Panel –***
*What makes an building energy efficient & what do builders need to know to better incorporate energy efficiency – Marilou Cheple, University of Minnesota, Cold Climate Housing Program*
Marilou talked about the importance of controlling air flow and the 10 key components of a healthy building. She specifically emphasized the importance of viewing a house as a SYSTEM. Once you change one piece of that system, everything else changes too. She also stressed that air flow is really the major factor that determines energy efficiency, moisture management, and indoor air quality. However, what you do to achieve energy efficiency may actually be the opposite of what you want for indoor air quality, so it gets a bit tricky. The Ten Key Components, taken directly from their website (http://www.cnr.umn.edu/bp/extension/cchp.php) are listed below.

**Ten Key Components**
Adhering to these components will assure that a house is efficient, healthy, and durable. A newly constructed cold climate house should have:

1. Thermal insulation over the entire building envelope, including the foundation. This is usually a combination of materials. It should be installed to minimize gaps and cracks.
2. A continuous air barrier on the warm side of the building envelope. This barrier is essential to hold in the warmed (or cooled) air and prevent moist air from entering the structural cavities where it can condense on building materials such as the outside sheathing.

3. A vapor retarder on the warm side of the building. This is to keep the insulation and structural cavities dry.
4. A continuous weather barrier on the exterior of the building. This is needed to prevent water and wind from blowing into the wall cavity where it can cause mold and mildew problems, and reduce the effectiveness of the thermal insulation.
5. Energy-efficient, condensation resistant windows. These windows should include a newer technology called "warm edge technology." It helps keep the edges of the window warm to reduce condensation.
6. Effective ground moisture/soil gas control. Many of the moisture problems in today's homes result from moisture coming through the basement walls and floor. There are several ways this can be controlled with good waterproofing and a drainage system.
7. Low-toxicity materials, finishes, and furnishings. Choosing materials and furnishings carefully can help avoid indoor air quality problems and make the home healthier.
8. Safe, efficient heating and cooling systems. Direct-vent and sealed combustion equipment will greatly lower the risk of pollutants such as carbon monoxide from getting into the house when the furnace and hot water heater are in use.
9. Mechanical ventilation. A carefully planned and installed ventilation system is critical to assure good indoor air quality. There are many options available to remove stale air and bring in fresher outdoor air.
10. Efficient and safe appliances and lighting. Appliances and lighting are important parts of the system. They should be carefully chosen to complement the rest of the system.

During the Question and Answer, Marilou also mentioned several good web resources including:

- Home Energy - homeenergy.org Energy and Environmental Building Association - http://eeba.org/
- Building Science Corporation - http://buildingscience.com/
- Building Knowledge - http://buildingknowledge.org/
- Environmental Building News - http://www.buildinggreen.com/

*2005 Federal Energy Bill provisions and incentives for upgrades – Phil Smith, Minnesota Department of Commerce, State Energy Office*

Phil gave an overview of the energy efficiency incentives in the new Federal Energy Bill. Phil's presentation was really a tremendous review of what's available, what the limits are, who the incentives go to, etc. Please check out his presentation on the CERT website. To see more about state and federal incentives visit: http://www.dsireusa.org/. For more on the Energy Policy Act of 2005, or EPAct 2005, as it is affectionately termed, see: http://www.energytaxincentives.org/ or http://www.energy.gov/taxbreaks.htm. For the full text see: http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=109_cong_bills&docid=f:h6enr.txt.pdf.

*Weatherization and Energy Auditing – Mark McLaughlin, Minnesota Department of Commerce, Weatherization Program*

Mark gave an overview of the weatherization program and what they do as part of an energy audit. There are around 3,000 energy audits performed each year, with $2,744 being the average cost of weatherizing a home. These audits utilize blower door diagnostics to measure how tight/ leaky a home is and to analyze where the leaks are located. They utilize a computerized tool to calculate the savings to investment ratio (SIR) for various home improvements to determine which improvements are most cost effective. For more information about the Weatherization Program visit the Commerce website (www.commerce.state.mn.us) and click on "Heating Assistance".

***Solar Panel***

*Minnesota Solar Basics, Solar System Incentives and Planning a Solar Project – Brian Ross, CR Planning*

Brian gave an overview of Minnesota solar resource comparing it to Houston, Texas and Jacksonville, Florida (cooler temperatures can actually make systems more efficient). He showed the maps of Minnesota's solar resource over the past few years and explained that while the solar resource varies across the state from year to year, it generally doesn't fluctuate more than 15% from region to region, year to year. As such, your solar resource is much more dependent upon local siting (i.e., making sure you install your system in a non-shaded area facing towards the south) than statewide trends.

Brain described how PV systems (sunlight to electricity) and solar thermal (sunlight to heat) systems work and then went through specific incentives offered for each type of system. Please review the meeting presentation for more information on solar system incentives, or go to http://www.state.mn.us/mn/externalDocs/Commerce/Solar_Financial_Incentives_092905091412_solarincentives.pdf for all the details.

Then Brian went into Community Solar Projects which he said are "defined by the involvement of the local or regional community in planning, organizing, funding, installing, and/or enjoying a solar energy system." We walked through the steps for planning a community solar project including developing a plan, setting out your goals, deciding upon an organizational structure, communicating and promoting your efforts, designing and installing the physical system, fundraising and financing, and claiming and give credit. For more details on each of these steps, please go to the website and check out Brain's presentation.

*Real life examples, Success and Hiccups*

- Dave Pederson, Prairie Woods – Dave said that Prairie Woods installed a solar system so that people could have access to functional solar demonstration project – a place where people could fulfill their curiosity, ask questions, and really get a feel for the technology. Dave also thinks of it as an opportunity to initiate conversations about the true costs of our energy usage – if we took a look at the bigger picture, we might look at the payback of the alternative systems differently.

- Karen Hilding, Willmar Public Schools – Karen gave the group an overview about the exciting projects happening with the Willmar Public Schools (WPS). Starting in 1995, WPS has partnered with the Schools for Energy Efficiency to reduce energy use by 10% in all of the WPS system by working both on the mechanical systems and behavioral aspects of the buildings and their occupants. In order to further educate the students and general public about energy use and its environmental impacts, WPS and Willmar Municipal Utilities are working together to get 12 solar panels installed on the front of Willmar Junior High to serve as a community showcase for solar power. Since no school funds will be used, they are looking for community groups interested in sponsoring a panel (about $1500 per panel) and the students have created a power point presentation that they can present to interested parties. Karen shared a letter drafted by the Junior High Discover Science class stating their reasons for wanting solar panels on heir school.

- Becky West told the group how she and her husband Graden decided to install a 1.5 kW solar array at their home in rural New London. Becky compared its cost with that of buying a new car, except the solar system's value doesn't depreciate as quickly as a car, and its value to

society is far greater. The solar array was installed by NE CERT member Jamie Juenemann, who gave the group a detailed breakdown of the costs (materials, labor) or a project similar to the West's. People were interested to see that in comparison with the cost of the panels, it made since to spend the extra money for the tracking system to get all the power possible out of the panels.

3:00 Adjourn

- After the meeting about ten people made the optional stop at the home of Becky and Graden West to see their solar system. The PV array consists of twelve 125 watt panels connected in series to an SMA Sunny Boy 1800U grid tie inverter. Excess electricity is fed back into Kandiyohi Power Cooperative's utility grid. Great job Becky, Graden and Jamie!