



**Minnesota Renewable Energy Society**

*connecting minnesotans with renewable energy resources*

# The Solar Flare

e-Bulletin from the Minnesota Renewable Energy Society

**March 2009**

## **March 2009 Highlights** - (See details in following pages)

- Monthly Member and Board Meeting – March 12, 2009
- Twin Cities Sustainable Communities Conference – March 19, 2009
- Metro CERTs Spring Resource & Networking Event – April 15, 2009
- Small Wind Turbine Installation Workshop – April 15-17, 2009
- Solar Energy: Everything You Always Wanted to Know About Photovoltaics – April 4, 2009
- Solar Energy: Everything You Always Wanted to Know About Solar Water Heating – April 18, 2009
- Elk River Energy Expo – April 18, 2008
- Introduction to Renewable Energy Options & Opportunities – May 2, 2009
- Living Green Expo - May 2-3, 2009
- German American Chamber of Commerce Solar Thermal Business Trip – May 27, 2009

## **Upcoming Events**

### **March 2009 Member & Board Meeting**

Thursday, February 12, 2009

6:00 PM – Guest Speaker

7:00 PM – Board Meeting

Location: Flannery Construction

[1375 St. Anthony Avenue, St. Paul, MN](#)



Join us for the next MRES Board Meeting on March 12 at Flannery Construction. Guest speaker Jeff Giedd will discuss the transformation of Boulder, CO, to [SmartGridCity™](#). You'll receive answers to the following questions: What is a smart grid? What type of technologies might I expect to find? How could a smart grid affect my life? Will a smart grid help enable additional renewable energy and distributed generation? Giedd also will take a look at some of the results from Xcel Energy's plug-in hybrid vehicle field demonstration and find out if a plug-in hybrid is really more fuel-efficient.

Jeff Giedd brings 17 years of experience in call center and project management to his position as a Performance Analyst for Minneapolis-based Xcel Energy. He's currently involved with endeavors ranging from a plug-in hybrid electric vehicle demonstration project to Xcel Energy's SmartGridCity™ program in Boulder, Colorado, where more than 14,000 customers are part of a buildout that combines traditional and cutting-edge technology. Jeff has a degree in Business Administration from Oral Roberts University.



## **Twin Cities Sustainable Communities Conference**

Thursday, March 19, 2009 at 12:30 to 9:30 pm,

Location: Paul & Sheila Wellstone Center for Community in St. Paul  
179 Robie Street East, St. Paul, MN 55107

Noon to 6pm Local Government Sustainability Workshop - \$25 [Register Here](#)

4:45 to 9:30pm Neighborhood Sustainability Conference - FREE- [Register Now](#)

Contact: Sean Gosiewski, Program Director, Alliance for Sustainability

sean@afors.org or 612-331-1099 x 1

[www.afors.org](http://www.afors.org)

Keynote Speaker - Ken Melamed, Mayor Whistler, BC, U.N. Recognized Eco-Municipality and Host of the 2010 Olympics [www.whistler2020.ca](http://www.whistler2020.ca)

## **Metro CERTs Spring Resource & Networking Event**

Date: April 15, 2009

Time: 3:00-7:30PM

Location: Science Museum of Minnesota

120 W. Kellogg Blvd

St. Paul, MN 55102



Join Metro Clean Energy Resource Teams (CERTs), Affiliates, Partners and Friends for to celebrate a year of community energy projects and to hear about new energy resources coming on-line. The program will be followed by food, drinks and time for networking.

Agenda:

3:00-5:30pm – Program

- Metro CERTs Network: Year in Review
- The Stimulus Package: Resources for your Local Energy Project
- GreenStep Cities: Learn about a new resource for MN cities and hear some examples of how some are leading the way.
- Community Energy Projects: Getting Started, Successes, Challenges and Lessons learned.

5:30-7:30pm

- Networking, light appetizers & cash bar

Go to the [Metro CERTs webpage](#) for more information.

## Solar Energy: Everything You Always Wanted to Know About Photovoltaics

Saturday: April 4, 2009

Course Location:

Century College

3300 Century Avenue N.

White Bear Lake, MN

Phone: (651) 779-3341

9 a.m. to 3:45 p.m.

Room: Century East Campus 2313



Century College and the Minnesota Renewable Energy Society have co-developed, this one-day introductory course for homeowners and people interested in learning the basics of how to design a solar photovoltaic (PV) system for residential applications.

The essentials of creating electricity from sun light are covered. You will learn to evaluate solar site resource, when solar PV is the right solution, the economics and incentives for solar PV, and system design principles. System components, system sizing, PV panels, inverters, grid connected vs. non-grid connected systems, electrical connections, will be all explored.

Mario Monesterio, a 20+ year veteran of solar system installations, is the instructor in this course. Mario is a RE designer, industrial energy engineer, solar installer, Energy 10 instructor, certified Industrial/commercial energy auditor, and consultant. He is active in national efforts to set standards in the renewable energy industry and partner in [Westwood Renewables](#).

People interested in taking the solar PV course may register on the [Century College website](#).

Course ID: 001826

## Solar Energy: Everything You Always Wanted to Know About Solar Water Heating

Saturday: April 18, 2009

Course Location:

Century College

3300 Century Avenue N.

White Bear Lake, MN

Phone: (651) 779-3341



Century College and the Minnesota Renewable Energy Society have co-developed, this one-day introductory course for homeowners and people interested in learning the basics of how to design a solar hot water heating system for residential applications.

The essentials of creating domestic hot water from the solar radiation are covered. You will learn to evaluate solar site resource, when solar hot water is the right solution, the economics and incentives for solar hot water, and system design principles. System components, system sizing, solar thermal panels, storage tanks, heat exchangers, and plumbing connections, will be all explored.

Ralph Jacobson, a 25 year veteran of solar system installations, is the course instructor. He is a materials engineer, NABCEP certified in both solar PV and solar thermal installation. Ralph is currently involved developing a strategy for growing the solar industry in Minnesota and developing training programs for the building trades. He is also on the Board of Directors of the Minnesota Renewable Energy Society and the owner of [Innovative Power Systems](#).

People interested in taking the solar thermal course may register on the [Century College website](#).

Course ID: 001827

## Small Wind Turbine Installation Workshop—Professional Development

April 15–17, 2009

Day 1: 10:00 a.m.–5:00 p.m.

Day 2: 9:00 a.m.–5:00 p.m.

Day 3: 9:00 a.m.–3:00 p.m.

Location: Great River Energy Headquarters  
12300 Elm Creek Boulevard, Maple Grove, MN



Due to the popularity of this course held in February, it is being offered again in April. Registration priority will be given through March 15, 2009, for those already on the waiting list from the last course. After that date, registration priority will be given to new installers, electricians, consultants, and manufacturers. Capacity is 50 people.

Designed for new and existing small wind Installers, MN Small Wind Manufacturers, Electricians, Consultants, PV Installers Interested in Wind, and Minnesota Renewable Energy Society Members, the course will cover in detail all the steps for a successful wind turbine project (up to 40 kW) including timelines, initial planning stages, siting considerations, wind resource assessments and energy production estimates, tower considerations, zoning requirements, interconnection, insurance, used equipment, permitting, equipment assembly, decommissioning, plus much more. The workshop will be lead by Roy Butler of Four Wind Renewable Energy, an expert with more than 12 years of design and installation experience with wind electric systems.

The course fee is \$150 for Minnesota residents and those working primarily in Minnesota, or \$200 for out-of-state participants not primarily working in Minnesota. Registration deadline is April 1, 2009.

For questions on the workshop, contact the Minnesota Renewable Energy Society at (612) 308-4757. Course registration is on the [MRES website](#).

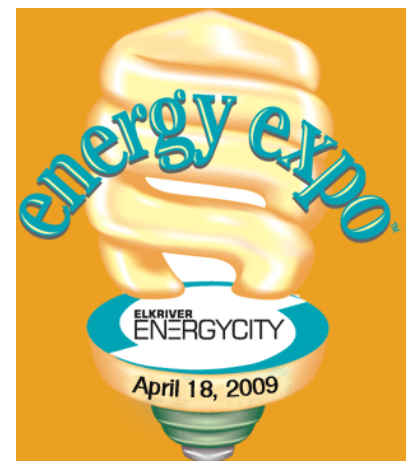
## Elk River Energy Expo

Saturday April 18, 2009

10 a.m. to 3 p.m.

Twin Lakes Elementary School  
10051 191st Avenue NW, Elk River, MN

The third annual [Elk River Energy Expo](#) will be held Saturday April 18, 2009 from 10 a.m. to 3 p.m. at the Gold LEED certified Twin Lakes Elementary School featuring exhibitors on energy and resource conservation technologies, innovations, and practices; children's performances by Tricia and the Toonies and CLIMB Theatre; presentations of awards for Energy Ennys and Energy Innovations contests by students of Spectrum High School, and a bus tour of Energy City demonstration sites.



### Keynote Speaker:

Joe Shuster, author of Beyond Fossil Fools, The Roadmap to Energy Independence by 2040. Joe will speak at 10:00 a.m. following the introduction by Mayor Klinzing.

## Introduction to Renewable Energy Options & Opportunities

Saturday, May 2, 2009, 8:30 AM to 5:00 PM (8:00 a.m. check-in)

Location: Flannery Construction, 1375 St. Anthony Avenue, St. Paul, MN

MRES offers Introduction to Renewable Energy (RE) Options & Opportunities: the course includes technology alternatives and options, including Solar PV (solar electric), Solar Hot Water & Space Heating, Passive Solar Hot Air Heating, Wind Energy, Energy Efficiency, RE environmental issues, RE costs, rebates & incentives, finance options, and RE career opportunities.



- Learn about energy efficiency and why it is important.
- Learn how RE impacts the environment.
- Learn basics about RE technologies and options, including solar PV (electric), solar hot water and space heating, passive solar and active solar hot air heating, and wind energy systems.
- Learn about RE costs; environmental issues; rebates, incentives, and financing options; and RE resources.
- Learn about RE installations in Minnesota: lessons learned and success stories.

This MRES class is intended for homeowners, community leaders, business owners, green and RE career seekers, people interested in RE, and the general public (intended for age 18 and over). Don't wait too long to register; this class has been very popular and has filled well before it begins.

[Course registration](#) and details are on the MRES website.

\$55 MRES members; \$75 non-members

## Living Green Expo

May 2 - 3, 2009

Saturday: 10 a.m. to 6 p.m.

Sunday: 10 a.m. to 5 p.m.

Minnesota State Fair Grounds (Saint Paul)

The 8th annual Expo features 250 exhibitors of products, services, and information, along with over 60 workshops on a variety of sustainability and green living topics. Expo attractions include music, food, demonstrations, and hands-on activities for families.



## German American Chamber of Commerce

American Solar Thermal companies interested in a business trip to Germany from May 27 to June 2, 2009



Please contact:  
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### American Recovery and Reinvestment Act to Deliver Clean Energy

Washington D.C. (Feb. 17, 2009) – President Barack Obama signed the American Recovery and Reinvestment Act ([H.R. 1](#)) at the Denver Museum of Nature and Science, which provides the U.S. Department of Energy Office of Energy Efficiency and Renewable Energy (EERE) with an unprecedented \$16.8 billion. In fiscal 2008, EERE received \$1.7 billion.



After passing both houses of Congress and going to a joint Senate-House Conference Committee, the final appropriations include:

- \$5 billion for the Weatherization Assistance Program
- \$3.1 billion for the State Energy Program
- \$3.2 billion for [Energy Efficiency and Conservation Block Grants](#)
- \$2.5 billion for Applied Research, Development, Demonstration and Deployment including:
  - \$800 million for Biomass
  - \$400 million for Geothermal
  - \$50 million for Information and Communications technology
- \$2 billion for Advanced Battery Manufacturing Grants
- \$400 million for Transportation Electrification
- \$300 million for an Energy Efficient Appliance Rebate Program and ENERGY STAR®
- \$300 million for an Alternative Fueled-Vehicles Pilot Grant Program

Other key provisions of this legislation include:

- Solar and energy efficient improvements for federal buildings
- Solar water heating incentives, removing the \$2000 cap on the 30% personal tax credit
- Green-collar job training programs
- Ending the state and municipal ‘subsidized financing penalty’
- Smart grid investments
- Expanding research and development programs for renewable energy and energy efficiency
- Removal of cap on the federal small wind turbines ( > 100kW) Investment Tax Credit (ITC)

The Solar Energy Industry Association has published an [executive summary](#) of the American Recovery and Reinvestment Act.

On Feb. 18, 2009, *Renewable Energy World Magazine* published an article with a little more detailed description: “[Clean Energy Aspects of the American Recovery and Reinvestment Act](#): How the new stimulus bill will increase renewable energy and energy efficiency in the United States.”

## Study Shows PV Costs are Down Significantly from 1998-2007

A new study (Tracking the Sun: The Installed Cost of Photovoltaics in the U.S. from 1998-2007 Wisner, R., G. Barbose, and C. Peterman. LBNL-1516E. February 2009) published by the Department of Energy's Lawrence Berkeley National Laboratory shows that the average cost of solar PV systems declined significantly from 1998 to 2007. However, installed costs remained relatively flat during the last two years of the period.

Lawrence Berkeley National Labs researchers reported that the overall decline in installed cost of solar PV systems was primarily due to decreases in labor costs, marketing, overhead, inverters, and balance of systems, rather than the cost of PV modules.

The study found that the average installed costs of a PV system declined from US \$10.50/watt in 1998 to \$7.60/watt in 2007 in real 2007 dollars. However, installed costs varied widely across U.S. states. Solar PV systems installed in 2006 or 2007, which were less than 10 kW, average costs range from a low of \$7.60/watt in Arizona to as high as \$10.60/watt in Maryland.

The report (Tracking the Sun: The Installed Cost of Photovoltaics in the U.S. from 1998–2007) can be downloaded from the [Environmental Energy Technologies Division website](#).

## Solar Minnesota Meeting Draws Big Turn-out

St. Paul (Feb. 17, 2009) – Rebecca Lundberg and James Dontje, [MRES Board members](#), led the Solar Minnesota meeting located at the Office of Energy Security and hosted by MRES. Nearly fifty people turned out for the meeting in February.

The [Solar America Initiative](#) brings together business, government, the energy industry, and community organizations to advance the solar industry.

The next Solar Minnesota meeting is scheduled for Monday, 27 April 2009 from 10 a.m. 12 Noon at Flannery Construction, 1375 St. Anthony Avenue, St. Paul, MN.



Lisa Mahoney from Xcel Energy Marketing speaking at Solar Minnesota meeting

## Roosevelt Students Prepare for the Solar Boat Regatta

Steve Greenway of GE Capital Solutions mentors about 90 students from Roosevelt High School in Minneapolis. Their focus is STEM (Science, Technology, Engineering and Math).



Steve Greenway leading Roosevelt Students

## Small Scale Wind Turbine Class Draws Big Crowd

Maple Grove, Minn. – (Feb. 11 - 13, 2009) The three-day small scale wind turbine class held at Great River Energy by MRES had almost 50 attendees and a waiting list of about 35 people. Roy Butler of Four Wind Renewable Energy taught the class.



Roy Butler Teaching at the Small Wind Class

## Renewable Energy Careers

American Solar Energy ([ASES](#)) GreenStart Job Board

One of the biggest challenges in finding a green-collar job is knowing which companies are in the green economy. To help you find interesting job opportunities, the American Solar Energy Society has created this GreenStart [Job Board](#) to introduce you to some of the organizations in the green economy and to provide a fast and easy way to browse the current job openings at each company.

[How to Land a Green-Collar Job](#): 15 ways to rev up for a job that's good for the environment, fills your wallet, and makes a difference.

In 2007, 9 million jobs from renewable energy & energy efficiency industries in U.S. (ASES).

## Rent Solar Cart



## Rent Solar PathFinder



Solar PathFinder - No cost loan to MRES members!

## Rent Solar Trailer

IPS Solar and the MRES have joined efforts to build the most versatile power supply in the state. The Solar Power Trailer is both an educational tool and a fully functioning power source that can provide quiet, clean, renewable power to any site. Use it for remote power at family reunions, picnics, church, or school events. Best Power donated the labor for the recent upgrade of the PV panels to 1.664 Kw.

Examples of What the Trailer Can Power:

- A concert for 5,000 people
- A small carnival
- Up to 25 trade show booths
- Temporary telecom sites
- About 5 concession stands
- About 200 laptop computers

Trailer Specifications:

- PV array rating 1664 watts (newly upgraded)
- 2 Trace SW4024 inverters (4 Kw at 48 volts)
- Battery bank rating 440 amp-hours = 21,120 Kwh
- 40 amp max at 110 vAC capacity
- Usable total battery capacity: 16,896 Kwh
- 10-volt 30-amp circuit breaker for larger concert equipment
- Approximate trailer weight: 3,000 pounds



To rent the solar trailer, solar cart, or solar pathfinder by contact David Boyce (651) 324-1642.

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