



**Minnesota Renewable Energy Society**

*connecting minnesotans with renewable energy resources*

# The Solar Flare

e-Bulletin from the Minnesota Renewable Energy Society  
August 2009

## Highlights - (See details in following pages)

- Member & Board Meeting – August 13 (*new start time at 5:30 p.m.*)
- Careers in Renewable Energy – August 22
- New Solar Energy Courses at Century College: August 25 - December 19
- The Eco Experience: Aug. 27– Sept. 7
- AWEA Wind Resource & Project Energy Assessment Workshop: Sept. 30 – Oct. 1
- Minnesota Solar Tour - Saturday, October 3
- E3: The Midwest's Premier Energy, Economic and Environmental Conference - Nov. 17

## Upcoming Events

### August 2009 Member & Board Meeting

Thursday, August 13, 2009

**5:30 PM – Networking and Pizza - Note new Time!**

6:00 PM – Expert Guest Speaker

7:00 PM – Board Meeting

Location: Flannery Construction

[1375 St. Anthony Avenue, St. Paul, MN](http://www.flanneryconstruction.com)



INSTITUTE ON THE  
ENVIRONMENT



This month, Rod Larkins will present background information on the [Initiative for Renewable Energy and the Environment](#) (IREE) as well as the [Institute on the Environment](#) (at the University of Minnesota) is the Institute under which IREE is located at the University of MN. Rod will cover, broadly, IREE's total renewable energy research portfolio investment and will spend a significant amount of time on IREE's past, current and future investments in Solar energy.

Mr. Larkins is the associate director of the IREE, a signature program of the Institute on the Environment. His primary responsibilities include stakeholder outreach and engagement, partnership development and strategic planning. IREE website: [www.iree.umn.edu](http://www.iree.umn.edu)

## Careers in Renewable Energy

Saturday, August 22, 2009

Century College, 3300 Century Avenue N.

White Bear Lake, MN

Phone: (651) 779-3341

8:00 a.m.–12:00 p.m.

East Campus, Room 2313



Century College and the Minnesota Renewable Energy Society have co-developed a new half-day course for people interested in exploring renewable energy careers.

One of the most common questions people ask about renewable energy is “How can I be involved in this rapidly expanding field?” Find out the answer to this question and a multitude of others in this 4-hour session. Careers involving solar and wind site assessment, design of systems, installation of systems, and many other aspects of solar PV, solar thermal, and wind power applications will be discussed.

Ralph Jacobson, a 25-year veteran of renewable energy system installations and owner of IPS (Innovative Power Systems), one of this area’s largest solar installers, is the course instructor. He is a materials engineer, NABCEP certified in both solar PV and solar thermal installation. Ralph is currently involved in developing strategies 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. People interested in taking the solar thermal course may [register](#) on the Century College website. Course ID: 000598.

## The Eco Experience

at 2009 Minnesota State Fair

August 27–September 7, 2009

(9:00 a.m. to 9:00 p.m.)

*Connect To The Sun*, the solar exhibit sponsored by the Minnesota Renewable Energy Society (MRES) at the Minnesota State Fair, walks visitors through the world of solar energy in simple terms with demonstrations of actual equipment. Guests can learn about using energy from the sun to power their home or business.



The Eco Experience is an indoor green space with lush rain gardens, an eco home, live entertainment, and cutting-edge displays on renewable energy, new fuels and vehicles, and organic farming. The Eco Experience is presented by the Minnesota State Fair and the Minnesota Pollution Control Agency, helping Minnesotans protect the environment since 1967.

The Eco Experience is located in the Progress Center building (J-9 on map) at the corner of Cooper Street and Randall Avenue on the State Fairgrounds. Park and ride information is available online at [www.mnstatefair.org](http://www.mnstatefair.org). Visit [www.EcoExperience.org](http://www.EcoExperience.org) for more information about The Eco Experience.

**Volunteers are needed** to help staff our exhibit. MRES is also interested in Business and organizational Partners for support of the effort. Check out the MRES [Eco Experience webpage](#) for more event details. [Volunteer online for the ECO Experience](#). Please contact Doug Shoemaker at (612) 308-4757 to **become a supporting Partner**.

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

## **Introduction to Solar Assessment (SOLR 1020)**

8/25/2009 - 12/15/2009 (Tuesdays and some Saturdays)

6:00pm - 8:50pm

Century College, 3300 Century Avenue N.

White Bear Lake, MN

Century East Campus 2287

Phone: 651-779-3200

ID: 001671

Instructor: Todd Fink



This course introduces students to basics of solar energy and solar site assessment for solar photovoltaic and thermal systems. Students will measure the solar window with a Solar Pathfinder(TM) and estimate the effects of climate, system design, and vegetation growth (and removal) on energy production. Using industry standard hardware, mounting options and equipment, students will propose system designs, model economic and environmental costs and benefits, and report their findings.

More information online: [SOLR 1020](#)

## **Energy Concepts (ESCI 1040)**

8/26/2009 - 12/16/2009 (Wednesdays)

6:00pm - 8:50pm

Century College, 3300 Century Avenue N.

White Bear Lake, MN

Century East Campus 2868

Phone: 651-779-3200

ID: 000099

Instructor: Geoffrey Force



This course introduces students to the topic of energy and examines energy production, supply, efficiency, and future needs. It also explores the potential of solar, biomass, photovoltaics, wind, and other continuous flow sources: including crude oil, natural gas, coal and nuclear. The impact of our current U.S. policy is viewed from an interdisciplinary approach that includes environmental, political, economic, and ethical considerations. Recommendation: Concurrent enrollment in ESCI 1045 (LAB).

More information online: [ESCI 1040](#)

## **Solar Energy Concepts (RENW 2020)**

8/29/2009 - 12/19/2009 (Saturdays)

9:00am - 12:00pm

Century College, 3300 Century Avenue N.

White Bear Lake, MN

Century East Campus 2287

Phone: 651-779-3200

ID: 001696

Instructor: Roger Aiken



This course provides the student with an overview of the theory and practice foundational to the technologies of solar thermal and solar photovoltaic (PV) systems. Topics include current and potential methods of harnessing solar radiation as an energy source, solar thermal theory, and solar PV theory and application. Prerequisite: Assessment score placement in RDNG 0090 or completion of RDNG 0080 with a grade of "C" or higher. Assessment score placement in MATH 0090 or completion of MATH 0070 with a grade of "C" or higher. Recommendation: MATH 1015. More information online: [RENW2020](#)

## Minnesota Solar Tour - October 3, 2009

10 a.m. to 5 p.m.

MRES will host the 14th annual American Solar Energy Society's [National Solar Tour](#) in Minnesota on Saturday, October 3. The Minnesota Solar Tour had more than 50 solar homes and commercial buildings and over 2000 visitors attend it last fall.

If you have installed a solar electric, solar hot water, passive or active solar hot air, ground-source heat, and/or wind energy system at your home or business and would like to have your site in the Solar Tour, we invite you to apply to be a site. We are now accepting [Solar Tour site applications](#) on the MRES website.

We expect an even bigger turn out this year, and we need volunteers again to help conduct the event.

Please contact Doug Shoemaker at (612) 308-4757 or [DougS@mnRenewables.org](mailto:DougS@mnRenewables.org) to work as a volunteer at the event. See more information about the event is at: [www.MNSolarTour.org](http://www.MNSolarTour.org)



## **AWEA Wind Resource & Project Energy Assessment Workshop**

American Wind Energy Association  
September 30 – October 1, 2009  
Minneapolis, Minnesota



The AWEA Wind Resource & Project Energy Assessment Workshop is structured as an intermediate to advanced level program bringing together industry experts to explore and discuss cutting edge techniques and tools thereby advancing resource assessment as the wind energy industry continues to develop. Visit the AWEA event website for more information: <http://www.awea.org/events/wra09/>

New to wind resource assessment? Attend the pre-conference seminar: Resource Assessment 101 designed especially for those workshop attendees that are new to the industry or looking for necessary background information that will allow them to follow the technical nature of the full workshop. The pre-conference seminar can be added on in the conference registration process.

### **E3: The Midwest's Premier Energy, Economic and Environmental Conference**

Tuesday, November 17 at the St. Paul RiverCentre



How do we provide sustainable fuel, food, fiber and fresh water to a global population of 9 billion people in our lifetime? That's one of the critical issues we'll explore during E3 2009. New this year, the conference features a lunchtime panel discussion with national experts, track sessions focused on the big questions of the 21st century, and a series of "Green on the Ground" workshops.

Hosted annually by the University of Minnesota's Initiative for Renewable Energy and the Environment, a signature program of the Institute on the Environment, the E3 conference showcases current technologies, environmental benefits and market opportunities in renewable energy. Each November, scientists, movers and shakers, and policymakers from across the Midwest and beyond join together to share knowledge and discoveries.

Student Registration \$20

Early bird rates available through Friday, October 16, 2009.

UMN Faculty and Staff: \$60

External: \$80

Regular registration prices available October 17 - November 13, 2009.

UMN Faculty and Staff: \$80

External: \$100

Onsite Registration November 17, 2009

UMN Faculty and Staff: \$90

External: \$110

More information and registration: [www.iree.umn.edu/e3](http://www.iree.umn.edu/e3)



## News

### Minnesota Office of Energy Security Solar PV Rebate Program Now Available

St. Paul, Minn. (July 16, 2009) – Of the \$3.4 million available for solar programs, \$400,000 is now available for the Minnesota Solar Electric Rebate Program. A summary of the program is below. Applications and guidelines can be downloaded from [www.energy.mn.gov](http://www.energy.mn.gov) or from the direct link: Solar Electric Rebates.

Eligibility: The subject property must be within Minnesota borders. Both grid-connected and off-grid systems are eligible.

Maximum eligible system sizes:

Residential:\*                5 kW  
Small Business:            10 kW



\*primary residences only, including multi-family homes

For residential applications, only primary residences are eligible. The applicant need not be the primary resident, however. (i.e. apartments and rental property are eligible if at least one tenant occupies the property as a primary residence.)

Small businesses with 20 or fewer full time equivalent employees are eligible. Others may inquire with [energy.info@state.mn.us](mailto:energy.info@state.mn.us) regarding funding opportunities for schools, local governments, commercial, industrial, and non-profit organizations.

Program participants from a past Minnesota solar electric rebate program are not eligible for the current program. OES will review the appropriateness of this criterion next year.

<b>Solar Contractor Qualifications</b>	<b>Rebate amount through Dec. 31, 2009</b>	<b>Rebate amount Jan. 1, 2010 - June 30, 2010</b>	<b>Rebate amount after July 1, 2010</b>
Licensed electrical contractor or licensed general contractor with at least two solar PV installations of at least 0.5 kW in previous 12 months	\$1.75 per watt	TBD	TBD
NABCEP certified PV Installer plus above	\$2.00 per watt	TBD	TBD

OES is examining ways to allow easier entry into the field for newly trained solar installers.

The Office of Energy Security (OES) would like input from the solar thermal community with regard to the following questions:

- Will \$15 per square foot (net aperture) be adequate to encourage consumers to purchase SDHW systems?
- If no to the above, what are appropriate funding levels, particularly for commercial jobs?
- Should incentive levels be the same or different for residential and small business?
- Last year's residential SDHW program excluded any portion of the system that was installed for space heating purposes. How should the new program treat systems with heating tie-ins?

Please send comments to [stacy.miller@state.mn.us](mailto:stacy.miller@state.mn.us) All comments will be considered by OES staff, and we will follow up with this group with the final program guidelines when they are available.

For now, we are still working with the U.S. Department of Energy to resolve the issues that NEPA presents for this and other programs we wish to launch.



U.S. DEPARTMENT OF  
**ENERGY**

## **Recovery Act Announcement: Energy, Treasury Now Accepting Applications for Funding for Renewable Energy Projects**

WASHINGTON D.C. (July 31, 2009) – With the goal of expanding development of renewable energy projects throughout the United States and creating new jobs, the U.S. Department of Energy and the U.S. Department of the Treasury announced they are now accepting applications for a program that will make direct payments in lieu of tax credits to companies that create and place in service renewable energy facilities. The two Departments estimate distributing at least \$3 billion in financial support to approximately 5,000 biomass, solar, wind, and other types of renewable energy production facilities. The funding for this effort is made available through the American Recovery and Reinvestment Act.

Said Secretary Chu: “This program will play a major role in encouraging private sector capital to invest in clean energy development, creating new jobs that can’t be outsourced. It is an investment that will continue to help our economy grow and ensure advancement in clean and renewable energy development.”

Eligible property under this program includes only property used in a trade or business or held for the production of income. Non-business energy property does not qualify for payments under this program but may qualify for federal tax credits. By receiving payments for property, applicants are electing to forego tax credits with respect to such property for the taxable year in which the payment is made or any subsequent taxable year. See <http://www.treas.gov/recovery/1603.shtml> for application and guidelines. Press release at: <http://www.treas.gov/press/releases/tg249.htm>

“As we move quickly to get our economy back on track and to repair the financial system, we must make investments that lay the foundation for a stronger economic future,” said Treasury Secretary Timothy Geithner. “Too many renewable energy projects have stalled due to a lack of financing.

The Recovery Act program will lead to investment in our long-term energy needs, move us towards energy independence, increase jobs at energy-specific businesses, and protect our environment.”

## Nine Minnesota State Colleges and Universities to launch innovative energy technician degree this fall

ST. PAUL, Minn. (July 31, 2009) – Nine colleges in the Minnesota State Colleges and Universities system will begin offering a ground-breaking, two-year degree program this fall that prepares students to work either in the renewable energy or traditional energy industries. Development of the new associate degree program – believed to be the first of its kind in the country – is funded mostly with a three-year, \$1 million High Growth Job Training Initiative grant from the U. S. Department of Labor.



**Minnesota  
STATE COLLEGES  
& UNIVERSITIES**

Besides the energy technical specialist degree, students will be able to earn a 16-credit certificate in one of four specialties – ethanol production, biodiesel production, wind turbine maintenance, and solar energy assessment. The certificate programs, which can be completed in as little as one semester, will be available online.

“This innovative approach enables our colleges and universities to meet a critical need of Minnesota’s traditional and emerging energy industries,” said Chancellor James H. McCormick. “Traditional energy employers have an aging workforce while renewable energy producers are struggling to find workers with appropriate technical skills. These new opportunities for students will advance one of our strategic directions, which is to enhance the state’s economic competitiveness.”

The colleges offering the new degree are Alexandria Technical College, Century College, Minnesota West Community and Technical College, South Central College, St. Cloud Technical College and four colleges of the Northeast Higher Education District – Hibbing Community College, Itasca Community College, Mesabi Range Community and Technical College and Vermilion College. These nine colleges and the Northeast Higher Education District’s Rainy River Community College make up the Minnesota Training Partnership for a Sustainable Energy Economy. Partnering state-run WorkForce Centers will help recruit students and place graduates in jobs.

Gail O’Kane, the system’s director for education-industry partnerships, said, “Offering a two-year degree in energy technology, along with certificates in specialized fields, also recognizes that a great deal of uncertainty remains about which energy sources will prevail over time – wind, hydrogen, biomass or some as-yet-unknown technology. But with a core set of skills, students will be well-positioned to complete additional training quickly as new energy technologies emerge.”

Students who earn the associate degree will be prepared for work in traditional energy industries, such as in electric generation plants, or they can specialize in a renewable energy field. The core curriculum approach was championed by the industry-led Minnesota Energy Consortium, which helped fund a study that identified the necessary core skills. Individuals interested in enrolling in one of these programs should contact Carol Hegna, the project’s recruitment specialist, at [carol.hegna@mnwest.edu](mailto:carol.hegna@mnwest.edu)

In addition to new curricula, the federal grant supports a semi-annual energy job vacancy report, two interactive learning modules for use in secondary schools and the Energy Careers Web site, [www.MnEnergyCareers.org](http://www.MnEnergyCareers.org), which will have information for students, job seekers and teachers. The project is being coordinated by the system office, which also is providing \$237,500. In addition, the colleges have received more than \$700,000 from the Renewable Energy Marketplace, which administers a \$5 million Workforce Innovation in Regional Economic Development grant in southwest Minnesota from the U.S. Department of Labor.

The Minnesota State Colleges and Universities system comprises 32 state universities and community and technical colleges serving the higher education needs of Minnesota. The system serves about 250,000 students per year in credit-based courses and an additional 140,000 students in non-credit courses.

## Minnesota Solar Industry Association (MnSEIA)

ST. PAUL, Minn. (July 14, 2009) – The *Minnesota Solar Industry Association* ([MnSEIA](#)) is a newly formed Minnesota non-profit. It was established to give the solar industry a greater voice and higher visibility in Minnesota, and MnSEIA is organizing as a chapter of the national *Solar Industry Association* ([SEIA](#)).

The MnSEIA represents and serves energy professionals and renewable energy users. It promotes the use of solar energy and conservation to improve the environment and create a sustainable future.

MnSEIA represents the solar industry in Minnesota. Membership is comprised primarily of active, passive, photovoltaic, and thermal solar companies and organizations that provide both residential and commercial products and services to consumers and businesses.

Membership categories include solar manufacturers, educational and informational organizations, architects, engineers, law firms, and concerned individuals and companies. MnSEIA's goal is to promote the use of solar energy that best serves the public interest.



MnSEIA members are primarily organizational members; however, individuals can join MnSEIA as a non-voting member. MnSEIA members are asked to accept the MnSEIA Code of Ethic, which is:

Consistent with fair business practices, members of MnSEIA pledge to

- Promote the use of solar energy that best serves the public interest
- Provide products and services in the customer's best interest
- Be responsive to customer complaints and suggestions
- Present honestly the capabilities, performance, and energy-saving potential of solar systems, products, repairs, or modifications
- Perform product servicing and repairs in a professional manner
- Offer reasonable, clear, and understandable warranties on products and services
- Promptly respond to and fulfill justifiable warranty claims
- Advertise bona fide prices for products and services
- Sell products and services without reflecting unfairly on the products and services of competitors
- Design, repair, install, or modify equipment in a manner that complies with applicable laws, ordinances and regulations
- Provide solar energy products, systems, and services that meet high standard of quality and performance.

Organizations or individuals who are interested in joining MnSEIA to give solar a greater voice and higher visibility in the State of Minnesota can contact the organization for more information about membership at: 651-646-2121 or on their website: [www.MnSEIA.org](http://www.MnSEIA.org)

## Bush Lake Izaak Walton League host Solar Power Potluck Event

BLOOMINGTON, Minn. (Aug. 2, 2009) – The Izaak Walton, Bush Lake Chapter, hosted a hands-on learning outing with clean renewable solar PV and solar thermal energy. Minnesota Renewable Energy Society ([www.mnrenewables.org](http://www.mnrenewables.org)) members were visited to the Bush Lake Ikes' abode for a good old-fashioned Solar Potluck on Sunday afternoon (3-6 p.m.). The event was held at the Izaak Walton League- Bush Lake chapter property on Bush Lake (7515 Izaak Walton Road, Bloomington 55438) [www.bushlakeikes.org](http://www.bushlakeikes.org)

In addition to good company and the potluck, attractions included the MRES solar trailer, electric cars and electric pickups that were able to charge via solar PV. People watched the solar-powered boat built by Orono High School (winner of the MRES 2009 Solar Boat Regatta Experimental Class) skim over the waves of Bush Lake.



Ralph Jacobson Speaking to Crowd



People enjoying Electric Cars, Solar Trailer, and Bush Lake on a nice day for solar

Ralph Jacobson and Doug Shoemaker, MRES members, spoke about how communities, neighborhoods, schools and churches throughout Minnesota are installing solar PV and solar thermal right now to reduce energy costs, cut CO2 emissions, educate our youth, and about the amazing incentives, rebates, and tax breaks offered by the feds, state and utilities are offering to get everybody moving toward clean sustainable energy in the Nation. High school youth from [YEA](#) (Youth Environmental Activists) Minnesota also spoke about their rapidly growing movement to combat global warming.

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Now you can become a fan of [MRES on Facebook](#):



You can also become member of the Minnesota Renewable Energy Society ([MRES](#)) [group on LinkedIn](#):



## Solar Workshop held for Homeowners Wednesday in Winona

WINONA, Minn. (July 22, 2009) – A workshop entitled Solar Energy for Homeowners was held on the evening of Wednesday, July 22nd in Winona, at the Winona Senior High School. The workshop ran from 6:00 – 9:00 p.m. at the Winona Senior High School, was organized by the Renewable Energy Subcommittee of the Winona County Economic Development Authority. The workshop's presenters – ranging from installers and dealers to consultants and homeowners - represented the best professionals in the business today. With the substantial tax credits, state incentives and utility rebates now in place, solar energy has never been more economically viable. At the end of the evening attendees walked away with the confidence needed to decide if a solar system and whether solar PV or solar thermal was right for them.



Lynn Hinckle Speaking to the Crowd in Winona

Speakers at the event included Jimmie Sparks of St. Paul NEC, Lynn Hinckle of HK Climate Solutions, Tom Thompson of Pine Island Solar, Ralph Jacobson of Innovative Power Systems Inc., Karin Matchett - Homeowner, Jim Riddle- Homeowner, Tom Fassbender of Red Tail Energy Resources and more than 70 people attended.

## White Bear Lake Environmental Resource Fair held in White Bear Lake

WHITE BEAR LAKE, Minn. (July 30, 2009) – The *White Bear Lake Environmental Resource Fair* was held July 30, 2009 at the Armory in White Bear Lake (5:30 to 8:30 p.m.). It was the season finale for Marketfest located at 4th and Cook. Live music, family fun, and sustainability education can be found at MarketFest's Environmental Resource Fair: [www.marketfest.org](http://www.marketfest.org)

Marketfest is a free family festival in beautiful downtown White Bear Lake that features live entertainment, fine art, a variety of foods, children's activities, a farmers market, a classic car show and much, much more.

The Environmental Resource Fair had about 350 attendees and 40+ exhibitors. MRES had an exhibit at the event.



MRES volunteers Joe and Jody Johnson, and Laura Cina worked at the table top MRES exhibit.

## Small Footprint Living Fair held in Grand Marais

GRAND MARAIS, Minn. (June 13, 2009) The Grand Marais Small Footprint Living Fair was held in Grand Marais on Friday and Saturday, June 12th and 13th. It was a casual gathering of exhibitors and speakers dealing with environmental themes, especially renewable energy, energy conservation, and agriculture related topics. MRES volunteer Tom Koehler was there working a table to inform people about MRES.



Doug Shoemaker and Tom Koehler

## Renewable Energy Careers and Networking

### New and updated products and services from the Minnesota Department of Employment and Economic Development, Labor Market Information Office

*Minnesota Employment Review...* The June 2009 Feature summarizes findings from Minnesota's Green Jobs Survey. The regional spotlight focuses on sales and customer service jobs in Southwestern Minnesota. Read the entire issue at <http://www.deed.state.mn.us/lmi/publications/review.htm>

*Minnesota Economic Trends...* How badly is the recession hitting Minnesotans compared to workers across the U.S.? Are men or women more likely to be laid off during this recession? Read our State of the State's Economy issue to find answers to these and many other recession and labor market related questions. The magazine is available on-line at: <http://www.deed.state.mn.us/lmi/publications/trends.htm> and will be available in print next month. Call or email to be added to the mailing list.

*Energy Careers ....* Find out all about careers in Minnesota's energy industry at: <http://www.iseek.org/industry/energy/index.html> This new career portal provides information on what energy careers are in demand, how much they pay, how to prepare for them and much more.

Questions? Contact DEED's Analyst Helpline: 651. 259.7384 or 888.234.1114 or send an email to: [deed.lmi@state.mn.us](mailto:deed.lmi@state.mn.us)

**[Green Job Search](http://www.greencollarblog.org): [www.greencollarblog.org](http://www.greencollarblog.org)**

**[Green Collar Blog](http://www.greencollarblog.org): [www.greencollarblog.org](http://www.greencollarblog.org)**

**[Green Drinks Minneapolis/St. Paul](http://www.greendrinks.org): [www.greendrinks.org](http://www.greendrinks.org)**

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<http://www.facebook.com/pages/American-Solar-Energy-Society/66983477980>

**Follow ASES on Twitter**



[http://twitter.com/ASES\\_Solar](http://twitter.com/ASES_Solar)

## Rent Solar Cart



Rent portable solar power @ \$50

## Rent Solar PathFinder



Solar PathFinder - \$25 rental to MRES members

## Rent Solar Trailer

[IPS Solar](#) and 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 solar power to any site. Use it for remote power at family reunions, picnics, church, or school events. [Minnesota MPCA](#) donated the PV panels to upgrade the Solar Trailer to 1.664 Kw, and [Mario Monesterio of Westwood Renewables](#) donated the labor to install the recent upgrade with the new PV panels.

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



Solar Trailer

To [rent the solar trailer](#), solar cart, or solar pathfinder - contact David Boyce at (651) 324-1642 or [DavidB@mnRenewables.org](mailto:DavidB@mnRenewables.org)

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Minnesota Renewable Energy Society  
2928 5th Avenue South, Minneapolis, MN 55408  
(612) 308-4757



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MRES Solar Flare  
Editor: Jan Hubbard  
Associate Editor: Doug Shoemaker  
For comments, suggestions, or  
story submissions, contact:  
[JanH@mnRenewables.org](mailto:JanH@mnRenewables.org) or  
[DougS@mnRenewables.org](mailto:DougS@mnRenewables.org)