



Minnesota Renewable Energy Society

connecting minnesotans with renewable energy resources

The Solar Flare

e-Bulletin from the Minnesota Renewable Energy Society

June 2009

Highlights - (See details in following pages)

- Member & Board Meeting – June 11
- Green by Design – June 10-11
- Small Footprint Living Fair – June 12-13
- Midwest Renewable Energy Association Energy Fair – June 19, 20 & 21
- Introduction to Renewable Energy Options & Opportunities – July 18
- Solar Energy: Everything You Always Wanted to Know About Photovoltaics – July 25
- Solar Energy: Everything You Always Wanted to Know About Solar Water Heating – August 1
- Careers in Renewable Energy – August 22
- NEWS: State Leaders Launch Solar Revolution in Minnesota (pp. 6-7)
- NEWS: Xcel Energy Proposes Solar*Rewards Program under CIP Funding (p. 8)

Upcoming Events

June 2009 Member & Board Meeting

Thursday, June 11, 2009

6:00 PM – Guest Speaker

7:00 PM – Board Meeting

Location: Flannery Construction

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



This month, we'll be hearing from Randy Hagen. Randy is the Founder and President of [Solar Skies](http://www.solarskies.com), Mfg, LLC, a solar thermal collector manufacturing company located in Starbuck, MN. Solar Skies originally began manufacturing Randy's patent pending solar powered aircraft ventilators until that part of the operation was turned over to Vantage Plane Plastics. Since that time Solar Skies has been focused on solar thermal collector manufacturing, and currently produces 13 different SRCC (Solar Rating Certification Corporation) rated collectors which are nationally distributed.

Topics Randy will be covering:

- Business History
- Solar Thermal Industry
- Federal and State Incentives and solar thermal
- Utilities and solar thermal
- Solar Skies products and manufacturing
- Solar Thermal in Minnesota
- Solar Skies Training

Green by Design

Fourth annual statewide conference

June 10 and 11, 2009

The Depot · Minneapolis

Presented by:

Minnesota Green Communities

Keynote Speaker: Hunter Lovins



The 4th annual statewide Green by Design conference and training is aimed at providing housing developers, builders, contractors, architects, city planners, environmentalists, funders, and other professionals the tools needed to build energy efficient, healthy, and sustainable housing. Multiple tracks will be offered, including sessions by local and national experts that focus on various elements of the Green Communities criteria (a set of nationally recognized green affordable housing standards) and other related topics. Examples of successful green building projects, including both multifamily and single-family developments, new construction and rehabilitation, will be highlighted throughout the conference.

Topics of interest include: Residential Green Building • Minnesota Housing Green Funding Requirements • Green Rehabilitation • Ensuring Healthy Homes and Communities • Green Opportunities and Issues Surrounding the Foreclosure Crisis • Sustainable Land Use Planning • Equitable Green Economic Development • Green Building Materials • Energy Conservation and Climate Protection Strategies • Rural and Urban Greening Strategies • and other great topics on green building, design, and public policy.

Click here for more information and to register online at: www.mngreencommunities.org/gbd

The Small Footprint Living Fair

Fri. June 12 & Sat. June 13, 2009

10:00 a.m. to 4:30 p.m.

Cook County Community Center Arena

Grand Marais, Minnesota

The Small Footprint Living Fair is two full days of affordable workshops, demonstrations and vendors to help connect people with ideas for green living, energy, gardening, business and more. It features a collection of experts from Cook County as well as around Minnesota and Ontario to share their experiences and offer practical suggestions and ideas in four main areas: Green Building, Green Business, Alternative Energy and Sustainable Food.



The Small Footprint Living Fair also offers a variety of events, including a film festival with refreshments provided from 7:00 - 9:00 p.m. Friday, hands-on projects and tours, a book fair offering great sustainable book titles at cost, and an exhibitor and craft fair, open daily from 10:00 a.m. to 4:30 p.m. daily. More information, a full list of events, workshops and speakers, as well as registration information, is available at <http://co.cook.mn.us>, through Diane Booth, Cook County Extension director at 218-387-3015, or committee members: Tristan Beaster, Joan Farnam, Cindy Gentz, Max Linehan, Bonnie MacLean, Melinda Spinler, Melanie Steele, Rebecca Wiinanen and Kathi Whittet.

The Midwest Renewable Energy Association Energy Fair

June 19-21, 2009 at the MREA ReNew the Earth Institute in Custer, WI.

Since 1990, the [Energy Fair](#) has shown fairgoers how to change the world while having fun. Each summer the Fair transforms rural central Wisconsin into the global hot spot for renewable energy education. The Energy Fair is the world's largest renewable energy, energy efficiency, and sustainable living educational event of its kind.



The 2008 Energy Fair was a record breaking success with over 22,500 attendees - it set an all time attendance record. The Fair is expected to be another big success this year.

The Energy Fair features workshops and exhibits all emphasizing clean energy & sustainable living and is fun for the whole family.

Energy Fair Features:

Over 270 exhibitors

Over 200 workshops

Mass transit offered from Madison, Milwaukee, Green Bay/Appleton, Chicago and Minneapolis.

Free hourly shuttles from Stevens Point

Clean Energy Car Show

Green Home Pavilion

Sustainable Table Workshop Area

Educator Workshops

Hands On Workshops

Food, entertainment for the whole family!

Keynote speakers:

Friday, June 19 at 1 pm - Antonia Juhasz

Saturday, June 20 at 1 pm - Alan Weisman

Sunday, June 21 at 1 pm - Wendy Williams

More information about the keynote speakers and workshops is available on the MREA website: www.the-mrea.org



Minneapolis Bus to the Energy Fair

Bus will leave at 6:30 am Friday, Saturday and Sunday. The bus will leave the Fair at 6:30 pm Friday and Saturday and at 5pm on Sunday. \$20 each way. For more information on pick up information, contact the MREA

MREA 5th Annual Small Wind Power Conference

A conference for the Small Wind professional scheduled June 16 & 17, 2009 in Stevens Point, Wisconsin at the Holiday Inn Convention Center. The cost is \$150 per person and includes light breakfasts, lunches, evening receptions and conference materials. To see a list of attendees and the tentative agenda, please visit: <http://www.the-mrea.org/smallwind.php>

Introduction to Renewable Energy Options & Opportunities

Saturday, July 18, 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

Solar Energy: Everything You Always Wanted to Know About Photovoltaics

Saturday: July 25, 2009

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 sunlight 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.

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 PV course may **register** on the [Century College website](#).

Course ID: 000597

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

Saturday: August 1, 2009

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 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: 000596

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.

State Leaders Launch Solar Revolution in Minnesota

SAINT PAUL, Minn. - (June 4, 2009) - Minnesota Senator Ellen Anderson, joined by Minneapolis Mayor R.T. Rybak, St. Paul Mayor Chris Coleman, and a host of other Minnesota officials announced several new bills promoting solar energy that are now part of Minnesota law.



Senator Anderson announces solar revolution in Minnesota with Mayors Coleman and Rybak

“Today, we stand together for a clean, green and an independent energy future for Minnesota,” declared Senator Anderson, lead author of the energy legislation that will result in significant solar investments throughout the state. “This goes beyond creating renewable energy options for residents and energy independence for our economy,” Mayor Coleman said. “This legislation represents the green economy we want, creating jobs for our residents and opportunities for businesses to grow as the industry develops.”

Legislators passed and the Governor signed more pro-solar energy legislation in the 2009 Session than ever before. Here’s a summary of five new bills that are now law in Minnesota.

Stimulus bill [Laws 2009, Chapter 138 (SF 657)]

- At least \$3 Million of federal stimulus funds must be used for solar rebates
 - \$3 Million for grants to local units of government for installation of solar projects
 - \$6.5 Million grants for school districts and local governments to install renewable energy systems
 - Solar electric installations using financial assistance must pay prevailing wage, installed by licensed contractors, and use best value bidding process
 - \$2 Million for grants to businesses to develop renewable energy systems
 - \$9.5 Million for grants to a port authority and other economic development authorities and owners of commercial and industrial facilities for energy efficiency and renewable energy improvements
- Individuals who receive assistance for solar heat are eligible for weatherization assistance.

(Solar revolution story continued on page 7)

(Solar revolution - continued from page 6)

Energy policy bill [Laws 2009, Chapter 110] (SF 550)

- Energy issues filed by Commerce and Pollution Control Agencies must include solar proposals
- Minneapolis and St. Paul must report strategies for accelerating solar PV & thermal technologies
- Allowance for PUC to approve Xcel Energy's renewable energy, conservation and electric vehicle project in the Central Corridor
- Allows utilities to request that the Commissioner of Commerce increase the spending cap on solar energy projects in the utility Conservation Improvement Program (CIP) from 5% to 10%
- Authorizes creation of financial incentives for solar projects using CIP funds
- Permission for 1% of Xcel Energy's RES in 2020 to come from solar energy
- Permission for solar generation and storage equipment to be installed on residential, commercial, and industrial buildings

Omnibus Environment, Energy & Natural Resources Appropriations bill [Laws 2009, Chapter 37 (SF 2123)]

- \$400,000 for Solar Rebate Program (new projects)
- Unspecified amount for U of MN's IREE to fund start-up costs for national solar testing and certification lab
- The Office of Energy Security is directed to do a feasibility study of bulk installation of solar PV panels on school building and report back to the Legislature by Jan. 15, 2010

Bonding Bill [Laws 2009, Chapter 93 (HF 855)]

- National Solar Rating and Certification Laboratory: \$2.15 Million to design, engineer, construct, furnish, and equip a solar rating and certification laboratory in mechanical engineering building of the Minneapolis campus of the U of MN
- West Central Research and Outreach Center, Morris: \$350,000 to acquire and install demonstration solar thermal and solar PV systems

Legacy Bill (Laws 2009, Chapter 172)

- DNR authorized to use legacy funds for solar and other renewable energy in state parks
- \$1.1 Million set aside for solar grant projects for parks of regional or statewide significance

"The idea is to make a short-term, coordinated investment in solar technologies, so that we can transform the market for solar in Minnesota and allow it to stand on its own in the long-term," said Bill Glahn, director of the Office of Energy Security and Deputy Commissioner of Commerce.

Minneapolis and Saint Paul were designated Solar America Cities by the U.S. Department of Energy in 2008.

"We need to build a new economy based on clean energy technology, because the economy of the past – whether we like it or not – is over," Mayor Rybak said. "The old ways of doing business have literally run out of gas. Not only will an urgent focus on clean energy jobs, like solar power, rebuild and reinvent our economy, it will begin to undo the damage we have caused to our planet."



Mayor Rybak addressing enthusiasts at the Capitol

Xcel Energy Proposes Solar*Rewards Program under CIP Funding

MINNEAPOLIS - (June 4, 2009) - [Xcel Energy](#) filed a proposal with the Minnesota Office of Energy Security (OES) to help customers save money by using less energy with a comprehensive series of new and expanded programs under its proposed 2010–2012 Conservation Improvement Program (CIP).



Minnesota legislators agreed during the 2008 Session that renewable energy resources such as solar, which meet certain energy efficiency requirements, may be included within public utilities' CIP plans.

New in this plan is the proposed *Solar*Rewards* program, which would provide rebates to customers who install solar photovoltaic (PV) systems of up to 40 kilowatts on their premises. Xcel Energy would purchase Renewable Energy Credits (RECs) generated by customers' solar systems.

A REC is a tradable environmental commodity that represents the environmental, social and other benefits associated with renewable energy generation. RECs could be sold along with the power generated by the renewable energy facility or sold separately.

In the filing with OES, Xcel proposed that participating customers would agree to sell the RECs to Xcel Energy in exchange for a one-time payment, not to exceed \$2.25 per Watt, which is an estimated per kWh REC cost of 8.2 cents.

“We believe solar can be a viable resource in Minnesota for meeting our customers' energy needs, and we want to better understand how it can work on our system,” said Judy Poferl, Xcel Energy regional vice president. “This program is going to help us support our customers' strong interest in renewable energy options.”

The filing also includes new features and technologies for a number of existing business programs, as well as developing more individual advisory services for business customers. Pending approval by the Office of Energy Security, Xcel Energy will begin implementing/expanding programs in 2010.

Vermont Passes Feed-in Tariff

MONTPELIER, Vt. - (May 27, 2009) - Vermont legislators passed the Vermont Energy Act of 2009 (H. 446) allowing 10-20 year power contracts from wind energy and biogas and up to 25 years for solar projects. Commonly referred to as a “feed-in tariff,” it is intended to encourage installation of grid-connected renewable energy systems.



Key elements of H. 446 include:

- A program cap of 50 MW and project size cap of 2.2 MW
- Solar tariff of \$0.30/kWh
- Wind tariffs of <15 kW at \$0.20/kWh and >15 kW at \$0.14/kWh
- Landfill and biogas tariff of \$0.12/kWh
- Future tariffs based on generation cost plus profit less applicable tax credits and other incentives
- Regulatory examination of the tariffs by September 15, 2009 and new rates set in January, 2010

The new Vermont Energy Act will apply to renewable energy systems commissioned on or after September 30, 2009 that are up to 2.2 megawatts in capacity.

2009 MRES Solar Boat Regatta - One of the Most Successful in 17 Years

SAINT PAUL, Minn. - (May 16, 2009) - This year, the MRES Solar Boat Regatta had 14 solar powered boats, as many any prior year. In addition, there were many firsts this year:

- First time a for corporate sponsored team: assisted design and building of boat, and won first place in the student class
- First time a returning middle school team won as a senior high team
- First time Boy Scout team competing
- First time college team competing
- First time all-girl team competing

The winning experimental boat proved its prowess by pulling participants around the lake on a boogie board after the event. What's next - solar powered water skiing? More photos on [MRES website](#).



Experimental class (24v) winners - Orono High School

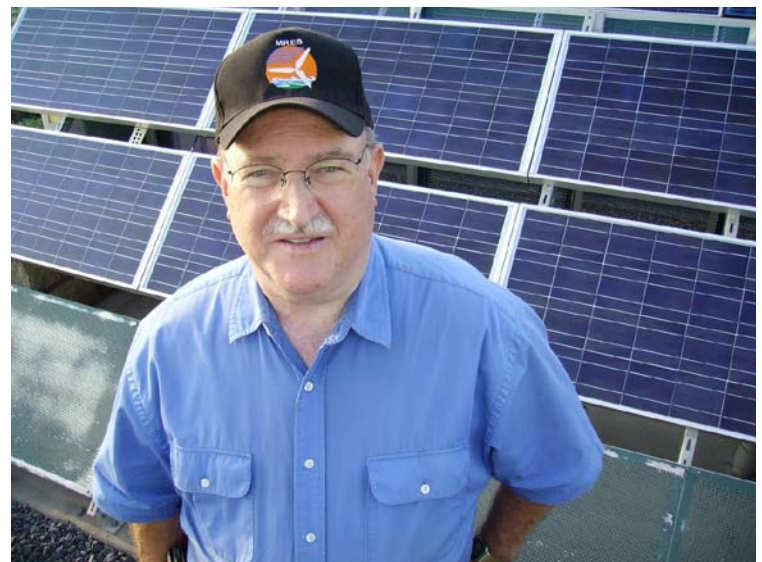


Student class (12v) winners - Roosevelt High School

Doug Shoemaker - Solar Hero

BOULDER, Colo. - (May 20, 2009) - [Solar Today](#) magazine, the print and online publication of the American Solar Energy Society ([ASES](#)), recently published a story about Doug Shoemaker.

Solar Today recognized Doug for the many renewable energy and community projects in which he's been involved. As a "volunteer gone wild," he's become a keystone in the Minnesota Renewable Energy Society (MRES). In addition to his work for MRES, Doug now serves on about 20 renewable energy related committees and task forces. He chairs the [Northland Bioneers](#), a sustainability group, and last year began working with [3M](#) to help establish a [Green Jobs Task Force](#). Read the whole story in Solar Today: www.solartoday.org/heroes



Doug Shoemaker - "Solar Hero"

MRES Members Visit O.H. Anderson Elementary (Mahtomedi)

MAHTOMEDI, Minn. - (May 15, 2009) - MRES members Christopher Childs and Pat Dreese paid a visit to O.H. Anderson Elementary school to explain and demonstrate how renewable energy and energy conservation address environmental problems.



Pat Dreese demonstrating solar energy

Dreese and Childs demonstrated how solar PV and wind turbines generate electricity and explained how evacuated tube and flat panel solar panels collect energy from the sun for heating water and buildings. The children were inspired by their observations and asked many questions.

Green Institute, CEE, and MRES Combine Forces at Greenival

MINNEAPOLIS - (May 15, 2009) - The Seward Montessori School “Greenival” had about 300 people attend the potluck family event. [The Green Institute](#), the [Center for Energy and the Environment](#) (CEE), and the [Minnesota Renewable Energy Society](#) (MRES) collaborated at the event.



Laura Cina (MRES), Agatha Vaaler (Green Inst.), Neely Crane-Smith (CEE)

Laura, Agatha, and Neely provided information and answered questions about solar energy, energy efficiency, community energy, the Minnesota Energy Challenge, green lifestyle, community projects, composting, rain barrels, and the ReUse Center.

Renewable Energy Careers

Metro CERTs Community Organizer

Green Institute seeks an Organizer whose primary responsibility would be to provide organizational support to communities for the Metro Clean Energy Resource Teams (CERTs) Network. The position reports directly to the Metro CERTs Coordinator. Please submit applications to: dmckeown@greeninstitute.org or to Diana McKeown at 2801 21st Ave. S. Minneapolis, MN 55407. Applications received after COB *June 15, 2009*, may not be considered.

The Green Institute's mission is to "sustain the environment and our communities through practical innovation." The Community Energy Program accomplishes this through working to develop or assist in the development of community-oriented renewable energy and energy efficiency projects. The Green Institute is interested in leveraging its experience in project-oriented work to assist a broad range of communities in developing projects. More information at www.greeninstitute.org and www.cleanenergyresourceteams.org

RESPONSIBILITIES AND DUTIES

The Metro CERTs Organizer will be responsible for assisting communities with resources to create local energy projects as part of the Metro Clean Energy Resource Teams Network. This includes the following tasks, to be implemented in partnership with the Network Coordinator:

- Lead organizing efforts for some of the Metro CERTs events with the assistance of other Green Institute staff and partners, and the statewide CERTs events coordinator
- Support CERTs network communications strategies, including website content, other e-communication, media strategy, and fact sheets and other materials
- Staff community events and tabling opportunities
- Be the lead contact for specific CERTs affiliates/CERTs projects
- Develop and maintain strong relationships with key partner organizations, including existing CERTs staff, leading clean energy non-profits, neighborhood groups, clean energy businesses, city and county staff, and utilities
- Work to promote and facilitate providing assistance to the local energy initiatives of CERTs affiliates
- Work with interns to assist with project implementation
- Work on other Green Institute energy initiatives as necessary

QUALIFICATIONS AND EXPERIENCE

A qualified candidate will possess the following characteristics:

- Strong community organizing skills, facilitation skills helpful
- Strong written and oral communications skills
- Experience implementing effective communications strategies
- Knowledge of and experience with renewable energy and energy efficiency issues and projects
- Technical background in energy research and data analysis (such as provided by an advanced degree) desired but not required
- Ability to work effectively with a wide range of people and as part of a team
- Ability to self-initiate and work independently, including effective time management
- Attention to detail and ability to identify problems and develop solutions
- Minimum of three years work experience in a related endeavor
- Basic computer skills (Word, Excel, etc.)

This is a full-time position with a competitive salary (commensurate with qualifications and applicant's current and/or past positions) plus a complete benefits program including health, dental, disability, retirement and vacation. Occasional evening and weekend work hours to attend community events/meetings will be necessary. Green Institute is an equal opportunity employer.

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



MRES Solar Trailer

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

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