



Minnesota Renewable Energy Society

connecting minnesotans with renewable energy resources

The Solar Flare

e-Bulletin from the Minnesota Renewable Energy Society

February 2009

February 2009 Highlights - (See details in following pages)

- Monthly Member and Board Meeting – February 12, 2009
- CERTS Conference - February 10-11, 2009
- Solar Energy Trade Mission to India – Registration *Deadline* February 13, 2009
- Webinar on PV Equipment and Materials Supplier Export Opportunities to CHINA - March 3, 2009
- Careers in Renewable Energy – March 7, 2009
- Energy Design Conference, Duluth – March 9-11, 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

Upcoming Events

February 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 February 12 at Flannery Construction. Our guest speaker will be Brian Ross, co-founder of [CR Planning](#), a regional and community planning consulting firm that provides land use, economic development, energy, and natural resource planning. Brian has worked with many communities, organizations, and agencies on sustainable development policies, programs, and regulations, including energy efficiency and renewable energy initiatives. Brian currently manages the Solar in the Cities program for Minneapolis and St. Paul. He was the primary author of the State of Minnesota's guidebook on sustainable development practices, [From Policy to Reality: Model Ordinances for Sustainable Development](#), including model ordinances for energy efficiency and renewable energy to help communities meet climate protection goals. He was a major contributor to the State's guide to local comprehensive planning - [Under Construction](#).

Brian Ross will be presenting on DOE's [Solar America Cities program](#), in which 26 cities across the nation have launched initiatives to foster solar investments and set the stage for when solar energy achieves grid parity. He will provide details on the ongoing Solar Cities initiative in Minneapolis and St. Paul, which is working to transform the local and regional market for solar energy. Efforts to transform the local and regional market include changes in local policies and regulations, coordinated communications strategies targeted at specific markets, robust training programs, and state policy changes that support market transformation efforts.

CERTs 2009: Harnessing Resources & Teamwork for Minnesota's Energy Future

Third Clean Energy Resource Teams (CERTs) Conference, February 10-11, 2009

CERTs 2009 will bring together over 500 Minnesotans who are blazing the paths to a clean energy future by working on energy efficiency and clean energy projects in their communities, thus accelerating our learning process together.

This conference could not come at a more important time. Our economy is hurting, energy prices are on the rise, and the impacts of global warming are becoming increasingly clear. Minnesotans of all stripes want to know what they can do. It just so happens that many of the solutions to our global climate crisis are also the ones that are going to help our economy and our communities thrive.

You can be a part of Minnesota's clean energy future, and you can get energy efficiency and clean energy projects on the ground in your community!



Whether you're a farmer, utility representative, school staff, local official, student, business owner—or member of any community—there is a role for you to play. Learn what people are doing across the state, connect, and share resources.

Participant, sponsor, and exhibitor registration is now available!

To learn more and register, visit: www.CleanEnergyResourceTeams.org

Digital short videos were submitted for a chance to win fabulous cash and clean energy prizes: made as a 30 seconds to 3 minute video on clean energy projects, and entered to win the video contest.

Videos must have been received by January 9th. There was a two-week public voting period in January, and finalists will be screened at the 2009 CERTs Conference Reception on the evening of February 10th.

The Clean Energy Resource Teams present:

Clean + Green

Video Shorts Contest and Film Festival

Submit a digital short for a chance to win fabulous cash and clean energy prizes! Finalists will be screened at the 2009 CERTs Conference Reception on February 10th!

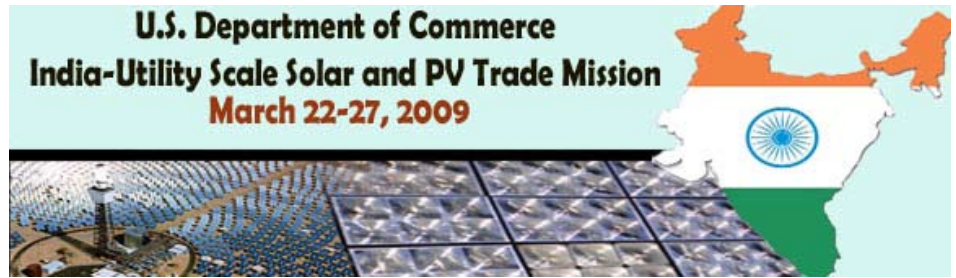
Submissions should promote community energy efficiency or clean energy projects and CERTs, and be between 30 seconds and 3 minutes long. Videos must be received by January 9, 2009. For more information and complete contest rules, visit: www.CleanEnergyResourceTeams.org/Events/CleanGreenFilmFest

Solar Energy Trade Mission to India

March 22nd-27th, 2009

Deadline, February 13, 2009

Be a part of renewable energy history and help shape the future of India's solar energy market.



The U.S. Department of Commerce-U.S. Commercial Service is leading a groundbreaking Solar Energy Trade Mission to India from March 22nd-27th, 2009.

The mission offers U.S. firms a cost effective way to meet potential business partners and government decision makers who are on the front edge of shaping India's solar energy sector.

Application Deadline: The mission is open to 10-15 solar companies with market potential in India. Space is available on a first-come, first-serve basis. Your participation is not secured until payment is processed. Registration deadline, February 13, 2009. If you are interested, you may contact Tim Odegard at the Minnesota Trade Office - Phone: (651) 259-7491 or Email: tim.odegard@state.mn.us

More information at: <http://www.buyusa.gov/pacificsouth/indiatrademission.html>

Webinar on PV Equipment and Materials Supplier Export Opportunities to CHINA

March 3, 2009, 6:00-7:15 pm ET [Mar 4, 7:00-8:15 am China Time]

Venue: Your Computer via webinar

Fee: \$40



www.export.gov/china

This live Internet briefing explores the China Solar Equipment Market. Photovoltaic (PV) Equipment and Materials Suppliers interested in China will learn why the Shanghai region is hot. The talk will focus on what US-made solar panel equipment is being sold into China and expectations for future growth. Presenters from SEMI's China office, a U.S. solar equipment supplier, and a Chinese solar cell manufacturer discuss opportunities in the China solar equipment market. Join the program live and/or view a recording later at your convenience.

- China manufactured over 28% of world's solar cell production in 2007
- Chinese companies import most equipment and materials from overseas creating huge opportunities for U.S. suppliers
- China produced approximately 5,000 metric tons of solar grade silicon materials in 2008, and is expected to manufacture over 20,000 metric tons in 2009
- Solar manufacturing is a hot sector in China for investment, and is a key focus for the semiconductor industry since the technology is similar

For more information go to: http://www.buyusa.gov/asianow/chinasolar_webinar.html
or contact kellie.holloway@mail.doc.gov.

Careers in Renewable Energy

Saturday: March 7, 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



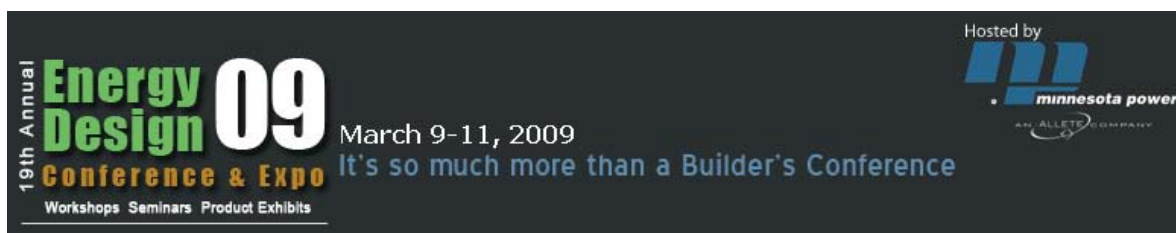
Century College and the Minnesota Renewable Energy Society have co-developed a new half-day course for people interested in exploring renewable energy careers.

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.

If you are a Minnesota Renewable Energy Society (MRES) member, you can receive a \$10 discount on the course fee. Please contact the Century College registration office at (651) 779-3341 to receive the discounted rate. [Click here](#) for more information on joining MRES.

Course ID: 002413. People interested in taking this course may [register on the Century College website](#) or call (651) 779-3341. Refunds are not available if course is dropped on or after March 4, 2009.



The annual Energy Design Conference and Expo started nearly twenty years ago as a one-day builder’s conference with just 45 attendees. It has grown to become a regionally recognized event that attracts over 1,300 people and more than 75 exhibitors.

This event delivers a diverse selection of quality seminars and workshops to a variety of building, housing, and environmental professionals along with educators, students, homeowners, and others.

Attendees enjoy a unique opportunity to meet and network with individuals, companies, and organizations while learning more about the wise use of energy and resources.

For more information go to: www.duluthenergydesign.com

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

ASES Forecast: 37 million U.S. green jobs by 2030

The American Solar Energy Society (ASES) recently released the latest update of our groundbreaking study on green jobs. It's posted at: www.ases.org/greenjobs

The ASES Green Collar Jobs report provides a sector-by-sector analysis of the green economy, the most detailed analysis yet. This report makes it easier to navigate the tremendous opportunities, and challenges, in the rapidly changing renewable energy and energy efficiency industries. And the potential is huge.

Here are a few of the findings of the report:

- As many as 37 million jobs can be generated by the renewable energy and energy efficiency industries in the U.S. by 2030 – more than 17% of all anticipated U.S. employment.
- The renewable energy industry grew more than three times as fast as the U.S. economy in 2007 (not including hydropower). Renewable energy is also growing more rapidly than the energy efficiency industry, but the energy efficiency industry is currently much larger than the renewable energy industry.
- Renewable energy and energy efficiency currently provide more than 9 million jobs and \$1,045 billion in revenue in the U.S. (2007). The previous year (2006) renewable energy and energy efficiency represented 8.5 million jobs and \$972 billion in revenue.
- 95% of the jobs are in private industry.
- Hottest sectors include solar thermal, solar photovoltaics, biofuels, and fuel cells (in terms of revenue growth).
- Hot job areas include electricians, mechanical engineers, welders, metal workers, construction managers, accountants, analysts, environmental scientists, and chemists. The vast majority of jobs created by the renewable energy and energy efficiency industries are in the same types of roles seen in other industries (accountants, factory workers, IT professionals, etc).
- Renewable energy and energy efficiency can create millions of well-paying jobs, many of which are not subject to foreign outsourcing. These jobs are in two categories that every state is eager to attract – college-educated professional workers (many with advanced degrees), and highly skilled technical workers.
- Renewable energy and energy efficiency industries are already significant economic drivers in Colorado and are well-positioned for future growth. Colorado's efforts provide an important model for other states working to generate new jobs in the New Energy Economy. In 2007 RE/EE generated \$10.3 billion in sales and provided over 91,000 jobs in Colorado, accounting for more than 4% of the gross state product. This could grow to as much as \$61.5 billion and 613,000 jobs by 2030 with continued leadership, research, development, and policy efforts

Check out this report so you can see for yourself the huge opportunity. But there's another important step to turn this information into action.

Ensure that every key policy-maker and elected official – from the Obama Administration to State leaders and even the City Council – is aware of this new analysis and the important role that the green economy must play to get the economy back on track. Contact your elected officials to tell them about this report and urge them to make growing the green economy a priority this year. Let your elected official and policy-maker know they can download this free report at: www.ases.org/greenjobs

You can find the names of your elected officials here: www.votesmart.org

Will Steger Expedition uses Solar Panels in Arctic Global Warming Expedition

The Will Steger Foundation's recent Ellesmere Island Expedition completed a 1,400 mile dogsled expedition to Ellesmere Island in the northern Canadian Arctic, a short 500 miles from the North Pole. The expedition is part of the foundation's Global Warming 101 initiative, a series of polar expeditions that provide a first-hand eyewitness account of the effects of global warming in the polar regions. As with all Steger expeditions, daily journals, images, audio dispatches and video stories are broadcast live from the Arctic to the Will Steger Foundation education and expedition website: www.globalwarming101.com

Traveling in 24 hour daylight provides ample opportunity to charge the teams technology with solar panels. Using Brunton's Solaris 54 panels in series, along with associated inverters and storage banks allowed the team to keep batteries charged for several satellite phones, still cameras, video cameras, laptop computers, GPSs, iPods and PDAs.



Steger Expedition 500 miles from North Pole Collecting Solar Energy in PV Panels

Will Steger is the recipient of a number of awards for his work on climate change and joins a long list of esteemed explorers—Amelia Earhart, Charles Lindbergh, Roald Amundsen, Jacques-Yves Cousteau and Neil Armstrong—as an honoree of The Lindbergh Foundation, The National Geographic Society and The Explorer's Club.

About the Will Steger Foundation: Established in January 2006 by polar explorer, educator, activist and author Will Steger, the Will Steger Foundation is a leading organization dedicated to creating programs that foster international leadership and cooperation to slow global warming through environmental education and policy. Global Warming 101 is the first initiative of the Will Steger Foundation and raises broad public awareness about global warming as witnessed through Will Steger's polar expeditions. Global Warming 101 expeditions offer a unique view of people and places at the tipping point of climate change, while www.globalwarming101.com serves as an international platform for furthering education, discussion and activism, and sharing the experiences and updates from each expedition.

African American History Month – Environmental Fair

St. Paul, MN – February 4, 2009 – Wilder Foundation sponsored Open Cities Health Center for African American History month. MRES was invited to educate participants about solar energy.



Doug Shoemaker at African American History Month Environmental Fair

Youth Conference of Unitarian-Universalist Youth

Sunday, January 17, 2009 – One hundred and thirty 10th, 11th, and 12th graders, mostly from Twin Cities area, attended an environmental workshop at Youth Conference of Unitarian-Universalist Youth. About 30 of the high school students listened to presentations about solar energy and environmental issues from Doug Shoemaker and speakers from [The NEC](#) and [MPCA](#). MRES had a table-top exhibit at the event, which the students gathered around to listen to the speakers.



MRES Table-Top Exhibit at the Youth Conference of Unitarian-Universalist Youth

Energy Conference aims to Maximun Energy Security & Economic Development

Northfield MN – January 9, 2009 – BRINGING RENEWABLE ENERGY HOME: Energy Policies To Maximize Energy Security conference.

Attendees of the conference learned how cities, counties, non-profits and more individuals can become owners of renewable energy projects. They saw how renewable energy can promote more economic development and discovered how developing renewable energy can be made more simple.

Presentations at the conference:

- Paul Gipe, the North American wind energy expert gave an excellent tutorial
- Willi Voigt, shared his experience with implementing feed-in tariffs in Germany and their stunning success
- Wilson Rickerson illustrated the spreading wave of feed-in tariff legislation
- John Farrell (ILSR) - discussed economics including social cost, taxpayer v. ratepayer subsidies, ownership, dispersed generation
- Arne Kildegaard (Univ. of MN) - discussed economics including social cost, taxpayer v. ratepayer subsidies, ownership, dispersed generation
- Frank Fredrickson (MN Power) - discussed the utility perspective
- Betsy Engelking (Xcel Energy) - discussed the utility perspective
- Ralph Jacobson (IPS-Solar) - gave a solar industry perspective
- Lowell Rasmussen (Univ. of Minnesota) - discussed the challenges of Community based energy development

The presentations and the agenda can be downloaded: <http://www.newrules.org/de/fitconference.html>

Conference sponsors had table-top exhibits at the conference, including MRES.



Jan Hubbard at the renewable energy conference in Northfield

Getting More than “More” Renewable Energy in Minnesota

by John Farrell

Northfield MN – February 5, 2009 – The cornerstone of Minnesota’s renewable energy policy is the Renewable Energy Standard, with a goal of 25% renewable electricity by 2025. But while most believe the state will meet this ambitious goal, the mandate as designed may not maximize the economic returns to the state from renewable energy development.



John Farrell

A policy that can bring “better” as well as “more” renewable energy is before the state legislature – the bill is entitled Energy Security and Economic Development Act of 2009, introduced by Representative David Bly (DFL-Northfield). This concept is called a feed-in tariff (FIT), also known as an advanced renewable energy tariff. It has achieved remarkable success in Europe and has now been adopted by one Canadian province (Ontario) and one U.S. municipal utility in Gainesville, Florida. Half a dozen states are currently considering such a strategy, including Indiana, Michigan, Iowa, Wisconsin, and Minnesota.

Under a FIT, the government or public utility commission sets the price for renewable electricity sufficient to attract investment. The price is varied to take into account other important factors. For example, a government might prefer to encourage, with a higher price, rooftop solar and give a lower price for electricity generated from remote solar power plants. It might also prefer to encourage, with a higher price, emerging technologies.

Under a feed-in tariff, utilities must enter into long-term (usually 20-year) contracts with the producer. The government revisits the tariff price every couple of years, lowering it when it feels producers are making excess profits, raising it when insufficient production is occurring. Many Minnesotans may react in horror at the idea of government setting a price. But in fact, that is the way electric price setting has worked for more than a century. The Public Utility Commission offers a utility a guaranteed rate of return sufficient to attract investment in new power plants. But so far this process only applies to traditional power plants, not renewables. For renewable energy plants, developers must cobble together a byzantine array of tax benefits, rebates and mandates.

Simple fairness requires that state energy policy should level the playing field for renewable energy; better policy would give an edge to renewables, reflecting their superior environmental profile and price stability. That’s the basic principle of a feed-in tariff. Currently, the key stimulus for renewable energy are state renewable electricity mandates.

These set a mandated quantity and the “market” determines the price (aided and abetted by the various incentives mentioned above). A FIT sets a price and the quantity is determined by the “market.” In neither case is a pure market at play, but a FIT has certain advantages.

Critics of a FIT often ask why Minnesota needs a feed-in tariff if it has a Renewable Energy Standard (RES). Erasing the disparity in price setting is one major reason – it makes the game fair by giving renewable energy producers the same, simple process as utilities for marketing their electricity. But while a generic feed-in tariff tilts the playing field toward renewable energy, Minnesota’s proposal goes one step further – it favors local ownership of renewable energy which in turn maximizes the economic benefits to the state.

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In Minnesota, there's a tradition of supporting community ownership of renewable energy projects because of their superior economic returns to the state. With cash payments to small wind producers to small ethanol plants, the state has found ways to get "better" rather than just "more" renewable energy. After all, why get back \$1 for every dollar invested in renewable energy when you can get back \$4? That's the difference between the economic impact of absentee and local ownership of wind projects.

Critics also complain that a feed-in tariff costs more. The truth is just the opposite. Studies comparing European feed-in tariff programs to RES-style mandates in other European countries have found that a FIT achieves more renewable energy at a lower cost. Analysis by ILSR has found that while a FIT might increase monthly electricity costs for the average Minnesota household by up to \$2.00 in 2015 (if it replaced the RES entirely), the FIT would actually lower electricity costs by 60 cents a month by 2025. And renewable energy produced under a FIT favoring local ownership would generate 1,000 more green jobs and over \$300 million in additional economic impact over the RES (for more on the advantages of local ownership, see [Rural Power: Community-Scaled Renewable Energy and Rural Economic Development](#)).

In other words, a FIT pursues the same, established renewable energy goals, but in a fashion that pays bigger dividends to the environment and to the Minnesota economy. The debate over a feed-in tariff question is ultimately one of values. Are Minnesotans satisfied with a policy that will leave most of the economic benefits of more renewable energy in the hands of non-Minnesotans? Or would we be better off if Minnesota reaped the most from its renewable energy endeavor, for the environment and its economy?

To weigh in on the bill before the state legislature, contact members of the [House Energy Finance and Policy Division](#) or the [Senate Energy, Utilities, Technology and Communications Committee](#).

For more information on feed-in tariffs, see the policy brief, [Minnesota Feed-In Tariff Could Lower Cost, Boost Renewables and Expand Local Ownership](#).

John Farrell [jfarrell@ilsr.org] is a research associate on the New Rules Project at the Institute for Local Self-Reliance, where he examines the benefits of local ownership and dispersed generation of renewable energy. His latest paper is [Rural Power: Community-Scaled Renewable Energy and Rural Economic Development](#). You can find more of his work and more information on the New Rules Project at www.newrules.org

The Institute for Local Self-Reliance has spent the last 35 years changing the rules to allow communities to get the most of their human, natural and financial resources. It generates policy ideas from homegrown renewable energy to independent business associations and can be found online at www.ilsr.org

Disclaimer: The information in this article was provided by the author, and it may not necessarily agree with the view of the Minnesota Renewable Energy Society or its members.



Renewable Energy Jobs

Find the right renewable energy job for you!
or
Find talented employees!

Job Seekers

Searching for employment in the fast moving, exciting renewable energy industry?

Post your resume now – it's Free – meet the best companies in the renewable energy industry. Plus, you can browse the job listings by category, or search for your ideal position by using the new job search engine: <http://www.renewableenergyworld.com/rea/careers/jobseekers>

Employers

RenewableEnergyWorld.com offers a full-service candidate attraction vehicle for Renewable Energy Industry employers. Employer services include: online job postings, resume search, weekly newsletters and so much more. Start posting your jobs at: <http://www.renewableenergyworld.com/rea/careers/employers>

AMERICAN WIND ENERGY ASSOCIATION

[AWEA](#) is a national trade association representing wind power project developers, equipment suppliers, services providers, parts manufacturers, utilities, researchers, and others involved in the wind industry - one of the world's fastest growing energy industries. In addition, AWEA represents hundreds of wind energy advocates from around the world.

Careers in Wind - [AWEA Job Site](#)

Windustry

[Windustry](#) promotes progressive renewable energy solutions and empowers communities to develop and own wind energy as an environmentally sustainable asset. Through member supported outreach, education and advocacy Windustry works to remove the barriers to broad community ownership of wind energy.

[Where can I find job postings in the wind industry?](#)

[What types of jobs exist in wind energy today?](#)

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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