



**Minnesota Renewable Energy Society**

connecting minnesotans with renewable energy resources

# The Solar Flare

e-Bulletin from the Minnesota Renewable Energy Society

December 2009

## Member & Board Meeting

### Annual Member Meeting

Thursday, December 10, 2009

5:30 PM – Pizza, Networking and Voting

6:00 PM – Annual Meeting Presentation

6:20 PM - Board Member Elections

6:30 PM – Solar Jeopardy

Location: Flannery Construction

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



## SOLAR JEOPARDY

Given that this is the 30th anniversary year of the founding of the Minnesota Renewable Energy Society, we are commemorating the fact at the December Meeting by holding an interactive “Solar IQ Contest” in the Jeopardy game show format with all the trappings and fanfare. Come and compete against a slate of other MRES members and test your Solar Intelligence Quotient.

No, we’re sorry, Alex Trabec is not going to be Master of Ceremonies, but you won’t believe who has agreed to fill in for him on this momentous occasion. Categories will include:

### ROUND ONE Categories:

Solar 101 | Solar Tech | History of Solar | Dollars and Sense | Solar R&D

### ROUND TWO Categories:

DIY Solar | Solar for Idiots | Solar Politic | Solar Hi-Tech | Chewable Renewables

**Prizes:** All contestants will receive admission ticket to the MRES 30th Anniversary GALA Celebration on February 19th at the St. Paul Crowne Plaza Hotel featuring keynote speaker Paul Hawken, best selling author of Natural Capital and Blessed Unrest.

**Contestants needed:** Contestant application information is on the [Solar Jeopardy page](#) on the MRES website. Contestant applicants must be able answer these three Qualifying Questions:

1. What are two kinds of Solar Thermal collectors?
2. What are two types of Solar PV Cell Technology?
3. Does Minnesota have more or less solar resource than Germany in total incident energy? About how much more or less in Watts/Square Meter/year?

Or you can just come and be in our “Studio Audience” for this live event that will be taped for later broadcast. This special event will follow our regular annual membership meeting.

Send completed [Solar Jeopardy contestant applications](#) to [laurac@mnrenewables.org](mailto:laurac@mnrenewables.org) by Dec. 9th.

## Highlights - (Click on link below to see details in following pages)

### Upcoming Events

- [Annual Member Meeting - December 10](#)
- [MRES Board Member Elections - December 10](#)
- [Energy Conservation in Minnesota: Meeting the Challenge - December 17](#)
- [Introduction to Renewable Energy Options & Opportunities - January 30](#)
- [Everything You Always Wanted to Know About Photovoltaics - February 13](#)
- [MRES 30th Anniversary Celebration - February 19](#)
- [Everything You Always Wanted to Know About Solar Water Heating - February 27](#)
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### News

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- [1st Annual Minnesota Renewable Energy Society 2010 Awards Program - p.9](#)
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- [November Solar Minnesota Meeting \(Nov. 30, 2009\) - p.11](#)
- [2009 E3 Conference Draws over 750 Attendees - p.11](#)
- [Representative David Bly Visited MRES to Speak about Feed-in-Tariffs - p.12](#)

### Renewable Energy Careers and Networking

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## Upcoming Events

### MRES Board Member Elections

At the meeting on December 10, 2009, annual Board member elections will be held. We have four MRES Board member nominees; they are Carol Anderson, Tim Bethke, Eric Jensen, and Rebecca Lundberg. There are three Board seats open for election for a three-year term. The following bio's were submitted by the candidates.



**Carol Anderson**

Carol Anderson is a Master Electrician and owner of [True Blue Electric](#) and True Blue Solar. She has worked in the electrical field for 11 years, including working as electrician and consultant on an off-grid project in Ely, Minnesota with Will Steger. Carol was the electrician for the Red Stag Supper Club, a Silver Certified LEED project, as well as residential LEED projects and Minnesota Green Star projects.

She recently completed the PV Design & Installation course at SEI in Colorado. Carol and True Blue Electric will be partnering with MRES for the 2009 Eco-Experience at the Minnesota State Fair, lending time and energy to this very worthwhile cause. She is excited about the use of alternative energy and the new products and processes available to make solar energy more accessible.

*[MRES Annual Meeting and Board Member Elections continued on page 3]*

## MRES Annual Meeting and Board Member Elections [Continued from page 2]



**Tim Bethke**

My name is Tim Bethke and I am a current active member of the Minnesota Renewable Energy Society. I became a member after attending the July 2009 monthly meeting. I consider myself a clean energy technology advocate / enthusiast with a passion for growing the solar economy here in the state.

I have a solid working knowledge of clean energy technologies obtained through dedicated research, training, and active involvement in MRES. I am currently transitioning from a 29 year career in the filtration industry to pursuing a new career opportunity in the clean energy sector, ideally solar.

I am known as a collaborative technical leader with progressive experience leading engineering / technical teams (people), projects, and processes. I have solid presentation, training, planning, and organizational skills.

I feel I can offer the MRES organization my time, energy, enthusiasm, and shared vision for a sustainable renewable energy future. I am an intelligent, warm, and humorous individual who enjoys working with people with a shared common vision. I have enjoyed my experiences sharing the MRES vision with the general public at a number of events, starting with the Eco Experience. I look forward to getting more involved in moving the MRES vision forward.



Eric Jensen is the Energy Coordinator for the [Izaak Walton League of America](#). In this position, he is involved in reviewing and developing utility resource plans and rate designs and is active in the League's focus on distributed generation, Low Carbon Fuel policy, the Midwest Renewable Energy Tracking System, utility revenue decoupling, and wind energy siting and wildlife interaction. Eric is also involved numerous organizations, non-profits, and programs and has been very active with MRES since he attended his first meeting. He holds a degree in Chemical Engineering from UW-Madison.

The Strengths I offer to MRES and the Board: I would like to continue to move towards the more streamlined event management process that Doug and I (and others active on the events committee) had created progress towards. My knowledge of web development, the online environment in general, and social organizing can help MRES become more technologically savvy and accessible to the public. I also feel that by being more involved with MRES I could identify benefits in my experience and the work I do with legislators, businesses, utilities, MRETS, and other energy groups.

*[MRES Annual Meeting and Board Member Elections continued on page 4]*

## MRES Annual Meeting and Board Member Elections [Continued from page 3]



Rebecca Lundberg

Rebecca Lundberg designs and installs solar energy systems as president and CEO of [Powerfully Green](#). She has a Master's Degree in Education, a Minnesota Residential Building Contractor's license, and is a North American Board of Certified Energy Practitioners (NABCEP) Solar PV installer.

Rebecca collaborated on the energy design for the 2008 and 2009 Eco Experience exhibits at the Minnesota State Fair, designing the 2009 home for net zero energy on a Minneapolis urban lot. She is passionate about sustainable living, and lectures about conservation and renewable energy at every opportunity.

She was keynote speaker at the Audubon Center of the North Woods during the National Solar Tour in October 2008, speaker at the Duluth Energy Design Conference, and a guest speaker at 3M. Rebecca has experience teaching math, science, and gifted/talented education in the public schools, and works with the University of Minnesota's Institute of Technology and the Girls Excel in Math programs.

During 2009 Rebecca served as an Executive Board Member for the Minnesota Renewable Energy Society. She currently serves as Convenor of Solar Minnesota, and participates in the Advocacy Committee meetings.

### ENERGY CONSERVATION IN MINNESOTA: MEETING THE CHALLENGE

Thursday, December 17, 2009

12:00 p.m. – 4:00 p.m.

(Registration and lunch buffet at 11:30 a.m.)

A.G. Hill Ballroom, Kagin Commons  
Macalester College  
1600 Grand Avenue  
St. Paul, MN 55105



Please join the Minnesota Environmental Initiative at an upcoming policy forum on the state's 1.5% energy savings goal included in the 2007 Next Generation Energy Act. National experts and key local stakeholders will describe past and current energy conservation efforts in Minnesota, provide an overview of the 1.5% savings goal, and discuss the challenges of meeting the goal.

An optional tour of Macalester's new LEED Platinum-Certified building, Markim Hall, will follow the forum at 4:30 p.m. Please indicate your interest in attending the tour with your forum registration.

Forum on-line registration will close at 5:00 p.m. on Thursday, December 10. Space is limited, so register today to ensure your participation: <http://mn-ei.org/events/upcoming.html>

After December 10, as space allows, people interested in attending can contact:

Georgia Rubenstein [grubenstein@mn-ei.org]

Environmental Project Associate  
Minnesota Environmental Initiative  
phone: 612-334-3388 x107

Registration fee:

\$30 for MEI members or \$60 for non-members

Inquire with Georgia about need-based scholarships.

## MRES 30th Anniversary Celebration Gala and Symposium – February 19th, 2009

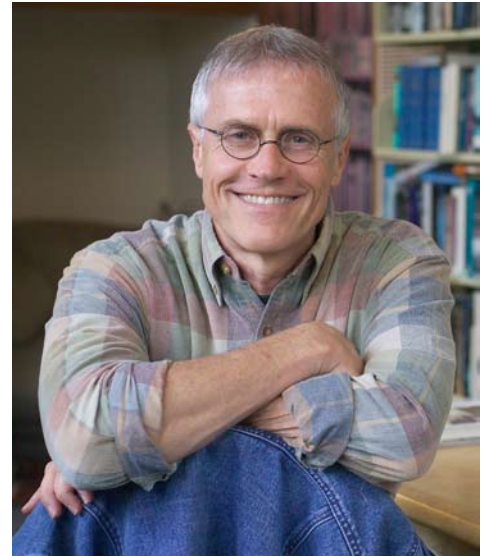
Location: Crowne Plaza Hotel

Address: 11 East Kellogg Boulevard

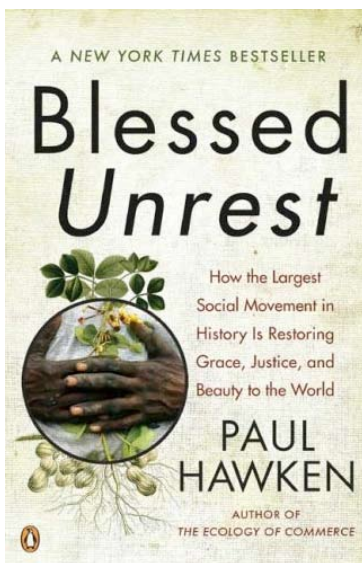
St. Paul, Minnesota 55101

We have big plans for our celebration! Celebrate a year of accomplishments and join with us as we take a retrospective look at a number of milestones in our history and layout our vision of unity of purpose for the future. There will be fun for all at this festive event. During the evening we will commemorate our 30th anniversary and inaugurate our 4th decade of public service.

The aim of our [30th Anniversary Gala and Symposium](#) is both to celebrate 30 years of accomplishments and to create progressive dialogue around the challenges we face as a society; and, from this platform, to launch the next 30 years -- during which society must address these formidable problems. To achieve our aim, we will join in partnership with a diversity of organizations to share the work of creating synergistic solutions to severe energy, climate, security, natural resource, economic and social problems, and to work for a better and more sustainable world.



Paul Hawken



[Paul Hawken](#), author of many best selling books including [Blessed Unrest](#), [Ecology of Commerce](#), and [Natural Capitalism](#) will be the keynote speaker. You will not want to miss this evening of fun and as we launch the theme: *Working together in this Blessed Unrest: Creating the next steps to a sustainable society.*

The gala celebration will also recognize and highlight the winners of our First Annual Excellence in Renewable Energy Awards Program. We hope you will join us for this amazing evening.

Paul Hawken Meet & Greet reception: By invitation or Partnership.

Dinner & program ticket price: \$45 members; \$75 non-members (Tickets are \$55 for members and \$85 for non-members after January 15, 2010).

Musical entertainment during the evening by [Michael Monroe](#).

Michael Monroe's unique musical creation leaves his audiences mesmerized as he blends his rich vocals, guitar, bamboo and glass flutes, combining musical styles of acoustic folk and jazzy reggae. Michael's original music and compelling energy bring a powerful style that is as much fun as it is innovative music and technology working together powered by creativity... and he recycles his music on stage with his "live" layering/looping technique by sampling and mixing his voice and musical instruments in real-time live during his performance.

Check out [Michael's music on MySpace](#).



Michael Monroe  
Photo by Jim Brandenburg

## Introduction to Renewable Energy Options & Opportunities

Saturday, January 30, 2010, 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: February 13, 2010

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](#). Course ID: 001978

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

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

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

Saturday: February 27, 2010

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](#). Course ID: 001979

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

## Careers in Renewable Energy

Saturday, March 13, 2010

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: 001980

## News

### New Managing Director for MRES

Nov. 12, 2009 – Minneapolis – MRES has the good fortune of Laura Cina joining MRES as its Managing Director.

Since mid-August, Laura has been working for MRES as the Interim Managing Director. At the November Board meeting, the Board voted unanimously to hire Laura as a permanent employee.

As Managing Director, Laura's duties include fundraising, training program development, organizational development, major events and volunteer coordination.

Laura has been an active volunteer for MRES since she joined as a member in April. She gave her time generously for many events, including the Eco Experience, the Solar Tour, the Solar Boat Regatta, and many MRES table-top exhibits.



Laura Cina - MRES Managing Director



Laura Cina at Elk River Expo on Earth Day 2009

Prior to working for MRES, Laura worked for [fre-Ener~g](#), a Minneapolis solar installation and leasing company, as its Project Administrator. You can contact Laura at MRES via email at: [LauraC@mnRenewables.org](mailto:LauraC@mnRenewables.org) or by telephone on 612-963-4757.

# 1st Annual Minnesota Renewable Energy Society 2010 Awards Program

Beginning this year, in our 30th Anniversary year, MRES will recognize excellence in design and implementation of significant renewable energy systems in homes, businesses and at the community scale as well as outstanding renewable energy initiatives efforts on the part of organizations and government agencies. MRES also recognizes the achievements and contributions of individuals.



Award winners are invited to a gala dinner, on Friday February 19, 2010, in Minneapolis, as part of the MRES 30th Anniversary Gala Celebration and awards dinner.

Award categories include:

- Residential Renewable Energy Project(s) of the Year (Single Family, Multifamily)
- Small Commercial Building Renewable Energy Project of the Year (10,000SF or less)
- Large Commercial Building Renewable Energy Project of the Year (over 10,000SF)
- Community Renewable Energy Project of the Year
- Renewable Energy New Product of the Year
- Local Government Award, which will recognize a government body that has worked to allow and encourage use of renewable energy technologies and removing market barriers to renewable energy.

MRES also honors individuals making significant contributions to the field of renewable energy and to the Society each year. Award winners will be recognized at the annual awards ceremony during the 30th Anniversary Gala Celebration February 19, 2010. Award Nominations are due January 15, 2010.

Individual award categories include: Most Significant Contribution Award, Solar Pioneer Award, Fellows of the Society, Volunteer of the year Award, Women in Solar Energy Award, and 2010 Research Award.

MRES will require electronic application submission by January 15th, 2010. Not only will this save resources, but it will allow judges to review materials remotely.

To be eligible, projects must have been started after January 2007 and substantially completed by December 2009.

Schedule in brief:

Call for Entries: December 10, 2009

Entry Deadline: January 15, 2010

Award Date: February 19, 2010

Location: Minneapolis, MN

Fees: \$100 for MRES Members and \$150 for Non-MRES Members\*

\* Individual award nominations do not have a fee requirement Minnesota Renewable Energy Society 2009 Individual Awards

For more information, go to the [MRES Awards Program webpage](#) or contact Laura Cina by email at: [LauraC@mnRenewables.org](mailto:LauraC@mnRenewables.org) or by telephone on 612-963-4757  
[www.mnRenewables.org](http://www.mnRenewables.org)

# MRES Board Strategic Planning

Dec. 5, 2009 – St. Paul – The MRES Board of Directors met to work on strategic planning for 2010.



Kari Moeller and Michelle Gransee-Boman Volunteered to Lead the Strategic Planning Board Meeting



MRES Board During Strategic Planning & Pot Luck Brunch

## November Solar Minnesota Meeting

Nov. 30, 2009 – St. Paul – MRES hosted Solar Minnesota meeting at St. Paul College CECT.



Jeremy DeFiebre, Office of Energy Security Spoke to Crowd at Solar MN Meeting while Rebecca Lundberg and Jim Dontje Convene the Meeting

## 2009 IREE E3 Conference Draws over 750 Attendees

Nov. 17, 2009 – St. Paul – More than 750 experts and enthusiasts gathered at the Saint Paul RiverCentre to share the latest advances in renewable energy during E3 2009.



MRES Exhibit at E3 Conference

## Representative David Bly Visited MRES to Speak about Feed-in-Tariffs

November 12, 2009 – St. Paul – Minnesota [Representative David Bly](#) spoke about Feed-In Tariffs at the November MRES Member and Board meeting. The [video](#) of the full presentation is on the MRES website.



## Renewable Energy Careers and Networking

### MRES Hosts Green Drinks

MRES hosts Green Drinks at:

Trotters Cafe

[www.trotterscafe.com](http://www.trotterscafe.com)

232 Cleveland N. Ave, St. Paul MN 55104

Cleveland and Marshall, parking behind Midway

Cleaners, or consider TAKING THE BUS!



Host Group:

Minnesota Renewable Energy Society (MRES)

Contact: Laura Cina <[LauraC@mnRenewables.org](mailto:LauraC@mnRenewables.org)>

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

December 9 / 6-7:30ish **[CANCELLED DUE TO WEATHER]**

Solar in the Third World! We will discuss Solar Energy possibilities in Third World countries, how it's a benefit and what we can do to help. Linda Cullen Weiley will be there to discuss her non-profit, Fifty Lanterns. Fifty Lanterns distributes solar flashlights and lanterns to women and children in countries such as Afghanistan and Rwanda. Mike Port will be there to discuss the non profit, The Solar Oven Society who makes and helps distribute solar ovens all over the world to help reduce the use of firewood for cooking which helps reduce detrimental health and environmental effects.

[www.solarovens.org](http://www.solarovens.org) [www.50lanterns.org](http://www.50lanterns.org)

January 13, 2010 / 6-7:30-ish

Loren Abraham of Abraham + Associates Architects will discuss the basics of passive solar and how it can be implemented in a home in order to use less energy and Joe Gransee Bowman will discuss the Passive House design approach that is being used in Europe to create ultra efficient homes.

TC Green Drinks: <http://greendrinks.org/index.php?region=USA&city=Minneapolis/St.%20Paul>

The Twin Cities Green Drinks (TCGD) is part of a global non-movement to charge your eco spirit, make some new connections, and learn a thing or two. All of our haunts offer a variety of organic food and beverages for ALL ages. Green-Drinkers from other cities are always welcome!

### Network with MRES on Facebook and LinkedIn



Just click on these buttons to be our Facebook Friend and join our LinkedIn Group.

## 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](mailto:DavidB@mnRenewables.org)

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