

Solar Education and Technology Acceptance Heliographs
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## record breaking SOLAR TOUR



Saturday Oct 3, Solar Tour day, saw just a few glints of sun but that didn't stop the record breaking number of visitors who took the Illinois portion of the 14th Annual National Solar Tour. This year came in as the largest statewide


One of 150 stops on the Illinois 2009 Solar Tour

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Reed Evans on Andersonville's New Sustainability Certification Program page 5

event ever with 150 homes and businesses demonstrating that solar power works in Illinois. More homes were featured as Full Tours this year, offering complete access to the public of their exterior and interior components. Thank you to our wonderful hosts for graciously opening their homes to help increase awareness about the beauty of solar power in Illinois.
This year, for the first time, we had 8 "super sites", locations that featured solar experts who provided detailed information to visitors. These sites were located across different geographic areas and represented a cross section of technologies on both the residential and commercial application.
This approach appears to have been a success, attracting on average more than 50 visits per site and having a halo
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See part one of Chaterjee's analysis in the 2009 issue of Heliographs, where he outlines the renewable energy sales cycle from lead to new customer referrals, Selling Solar: Key CHallenges in the Sales Process

LETTER FROM THE PRESIDENT

## Yes, In Our Back Yards!



Once again, the Illinois Solar Tour has proven to be a success, thanks to Lisa Albrecht and her "crew" (See story on pages $1 \& 3$ ). I expect the Tour to be an antidote to something not so pleasant. Namely, the "Not in My Back Yard (NIMBY)" movement against renewable energy. The NIMBY movement against renewable energy is not confined to large wind power systems, or just wind power. NIMBYism has spread to oppose solar energy systems large and small, thermal and photovoltaic, even the humble clothesline. Homeowner Associations and communities have been banning these installations, sometimes outright, many times with convoluted and burdensome requirements that make installations practically impossible and sometimes with "moratoriums" that seem to go on for ever and even when they end, leave a bitter aftertaste that precludes progress.
The reasons offered are numerous - threats to health and property values, philosophy like solar energy systems belong only on buildings and not in large arrays a distance away, or they shouldn't visible at all. There is also skepticism on the effectiveness of renewable energy or that underpinning reasons for its deployment, like climate or supply issues, are hoaxes. But a common denominator to NIMBYism is plain old fear of change. NIMBYism plays on many people's fear of any kind of change, especially in appearance, as threatening. It may be that seeing increasing numbers of solar, wind and other renewable energy systems is an unpleasant reminder to many that we can no longer guzzle, pollute, and sweep the consequences out of sight.
This does not give renewable energy a blank check in development. Sometimes wind farms have to be scaled back or re-sited for valid reasons, which happens about $5 \%$ of the time. Solar installations may have their own adjustments, like less reflective panels near airport runways. But shotgun opposition often reaches ludicrous levels. Wind farms are fought on noise issues in areas where trucks and motor cycles roar down highways. Solar panels are considered unsightly on streets where pink flamingos and gnomes adorn lawns.
It is said that all politics is local, and that may soon apply to power generation. I look forward to the 2010 Solar Tour on Saturday, October 2, where we can make the argument "Yes, In Our Back (and Front) Yards", and demonstrate that the growing numbers of renewable energy systems actually improve property values, redefine aesthetics and revive local economies.

Mark Burger<br>President, Illinois Solar Energy Association

## Electrifying the World



Finding "a Career that Makes you Crazy Excited"

# Charting Your Path to a Career in Renewable Energy 

I have long been interested in renewable energy and Foreign Service, but not until recently did the two merge.<br>By Shannon Fulton

Suffice it to say, Neville made me do it - Neville Williams that is. He's the "dreamer and doer" working to deliver solar power and wireless communications to rural villages in Africa, Asia, and Latin America.

Williams founded the Solar Electric Light Fund (SELF), a nonprofit organization. Williams' book, Chasing the Sun: Solar Adventures Around the World is an inspiring account of "how a small group of doers and dreamers struggled to turn their 'unrealistic' vision into the reality of a quarter of a million people getting their household energy from the sun." It asks the question: "If the poorest people in the world can have a "solar solution," why can't people in North America?"

I've never met Mr. Williams, but I consider myself a 'dreamer and doer'. A geologist in environmental consulting for 15 years, I had no experience in solar photovoltaics (PV). I knew I needed to retool before installing even the smallest array in my own back yard and charted a course to do so with Neville's words echoing in my head,
"It will be we, the people, who create the new world of clean, independent power, and Americans and Europeans will do it for the same reason that poor farmers buy a solar home system in South Karnataka, India, or Wellawaya, Sri Lanka, or Binh Phuoc Province, Vietnam. Because they can."

I'm only a year into my journey to becoming a solar PV expert and have a long road ahead of me, but I've learned some things along the way. Most notable is, that the path to becoming a PV expert is full of alternate routes to the same destination. I began my adventure less than a year ago by enrolling in ISEA Solar 101, one of the many day long courses in renewable technologies offered by the Illinois Solar Energy Association (Illinoissolar.org). I also enrolled in the Renewable Energy program at Illinois State University and a two-week long Solar Energy International (SEI) Solar PV Design and Installation class for women.



## (continued from page 1 )

effect on nearby locations. Thanks to the 10 volunteers who served as docents for the day, assisting solar owners with the crowd and myriad of questions. Feedback from visitors was positive as well.

Also this year, we entered into a strategic partnership with WCPT Radio who provided pre-tour publicity and featured the tour on the Dick Kay live broadcast all afternoon. And, not only did the broadcast air from Uncommon Ground Restaurant in Chicago, but owners Michael and Helen Cameron also hosted an "After Tour Party" with wonderful appetizers and drink specials. About 50 folks showed up and everyone had a great time.

Advertising sales were up despite the tough economy. As a result we were able to increase our PR budget, resulting in greater exposure. We were featured on Live Green with ABC7 News and got premier placement in the Chicago Tribune, Sun Times, Pioneer Press, Mindful Metropolis and many other publications.

## A Solar Tour Stop in Naperville

## Speaking of Solar Power

 tour.illinoissolar.orgTo take the virtual SOLAR TOUR go to http://

We are grateful to our sponsors and advertisers for supporting this event. Please support them in return! A full list of advertisers is available on the solar tour website.

> Planning is already underway for 2010

Save the date and join us Saturday October 2nd for THE NEXT SOLAR TOUR.
Please contact Lisa Albrecht if you would like to be a host or volunteer.

Solar Tour Organizer, Lisa
Albrecht with ISEA
President, Mark Burger

# Chicago <br> <br> Neighborhood <br> <br> Neighborhood <br>  

## Certifying Local Businesses for Eco-Friendly, Sustainable Practice

s


By Reed Evans

Neighborhoods and communities throughout the world are exploring how to become more economically, environmentally, and socially sustainable. Considering the serious ramifications of climate change, pollution, and natural resource


Hamburger Mary's depletion, Chicago's Andersonville neighborhood rolled out its eco-Andersonville Sustainable Business Certification Program in April 2009 to help small businesses through a certification process that puts them on the rigorous path towards sustainability.

The Coffee Studio
The non-profit Andersonville Development Corporation (ADC) originally intended to adopt a nationally recognized program. "We wanted a program that encompassed environmental, economic, and social sustainability and that was affordable and helpful to small, local businesses," says Managing Director Sara Dinges. "After months of research, we found no suitable model. That is when the business community decided to create its own." ADC is now receiving requests from other communities in Chicago, Illinois, and other States seeking to adopt their own version of Eco-Andersonville program and to receive assistance in developing their own program. ADC's staff is working hard to accommodate these requests.

The program offers 3 levels of certification divided into three main areas:

## People, Planet, Prosperity.

QPeople focuses on practices good for employees, customers, and the local community.

QPlanet checklist items require businesses to reduce energy, resource use, and waste; implement a recycling program; and switch to eco-friendly products and practices.

QProsperity requirements include proven management practices promoting business excellence.


Visionary Eye Care

Businesses must pledge to take on one significant sustainable project annually toward an improved environmental footprint. They also have to fulfill a certain number of "optional" criteria in each section that includes industry-specific green practices, smart technologies, and alternative energy systems. Solar thermal, passive solar and photovoltaic systems are welcome to help further the initial mission behind the certification program: the reduction of Greenhouse Gas Emissions in the dense urban commercial district of Andersonville.
The environmental criteria are difficult for many businesses to take on, especially renewable energy projects, but these can generate energy and cost savings, especially if businesses take full advantage of available tax credits and rebates. Locally-funded, ADC's new Green Building Incentive Program rebates help businesses pay for a variety of green building projects. This year, businesses can receive up to $75 \%$ funding with a maximum of $\$ 1000$ per project. The fund can be used towards any green building project that has a positive and measurable impact on the environment, including renewable energy systems.

## (continued on next page)



Green Gene's

## Six industry industry-diverse businesses in Andersonville are certified to date with fifteen more businesses in different phases of the application process.

With $94 \%$ of businesses locally owned, there has been great interest shown in the program. Hamburger Mary's and The Coffee Studio lead the way for food and beverage service; Green Genes and GreenSky head up retail shops; Visionary Eye Care is the first health care/retail facility; and Joel Berman Architecture and Design has LEED AP expertise; these are the early adopters of this cutting-edge program.

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Reed Evans is a sustainability and marketing communications consultant living in Chicago, IL. She is currently serving as a Sustainability Project Consultant to Andersonville Development Corporation.

## Ilunois Team

 Places Second in US Solar DecathlonThe 8 day long competition on the National Mall came down to a photo finish. Students and faculty back home in Illinois sat glued to their computers awaiting the news: Illinois placed first in three categories and second in three others. It was overtaken in the last hour of competition by Team Germany to place second.
At the half way point, the UIUC team held first place in Hot Water and Appliances, second in Home Entertainment, and third in Comfort Zone; ten points out of first place.

Because of its "passive house" design requiring essentially no air conditioning or heating, at night llinois' house gained kilowatt-hours on the competition, which had to run heaters. In the end, the student faculty team from the University of Illinois at Champagne placed 1st in Home Entertainment, Hot Water, and Appliances.


A student-faculty team from University of Illinois at Urbana-Champaign built this solar house on the National Mall in Washington, D.C.

The goal of the competition was to design, build, and test successfully a house that is powered $100 \%$ (or more) from the sun. Teams competed in ten areas --- hence Solar Decathlon--- for ten separate prizes. The competition included Architecture, Engineering, Lighting Design, Comfort Zone, Net Metering, Home Entertainment, Market Viability, Communications, Hot Water, and Appliances.

See more at: http://www.solardecathlon.uiuc.edu and http:// www.solardecathlon.org

Patrick Chapman is Associate Professor of Electrical and Computer Engineering. and principal investigator on the Decathlon project.

## Electrifying the World

## By Shannon Fulton

(Continued from page 2)
Your best path "all depends on what you really want to do day-to-day" says Carol Weis, PV Program Coordinator and Instructor at Solar Energy International (SEI), a non-profit organization teaching individuals how to design, install and maintain renewable energy systems in Paonia, Colorado.

Fifteen years ago, Weis was farming in Wisconsin when she learned about solar PV during a visit to the Midwest Renewable Energy Association Fair in Custer, WI. Taking advice she received from a peer at the Fair, she spent four years working with a master electrician, became a licensed electrician herself, and


Shannon Fulton installing solar panels moved to Colorado to get additional solar experience. She said, "I wanted a job that would make me crazyexcited. It took me almost 9 months to find a job after I took my first SEI class. It was an act of faith to say "I'm getting the job I want." Love what you do. Take less money if needed and be thrilled to go into work. If you can, follow that goal."

Audrey Lee, an SEI classmate of mine and second-career retooling architect from Tennessee who recently landed a job with a solar pv installer says she has taken a pretty severe pay cut in pursuing her new career but she says, "I feel that my passion for what I do and the fulfillment that I feel help to make up for the difference in pay. It's challenging but rewarding."

Another fellow traveler I met along the way is heading patiently and deliberately down a different path to a career in solar PV. Ronnie Gadzke, an engineer from Indiana and another SEI classmate, followed advice she received back in 1988 while attending her first PV design course with Paul Maycock at the American Solar Energy Society convention, (just after the Reagan administration pulled all the RE incentives enacted during the Carter years.) Dan Arvizu (then from Sandia, now at NREL) suggested she "Go work in the conventional engineering industry until the demand for solar becomes mature and then make the transition." Gadzke said "after my last corporate engineering job ended due to a downsizing last December, I determined that the new Administration in DC was finally going to act to address the national energy issues and that this was the best time for me to make the change."

I met a lot of interesting people charting their own course toward careers in renewable energy. Each one has a slightly different orientation, but all contain common scenes. Here are some possible paths to that solar PV job that makes you 'crazyexcited'.Bachelor's Degree in Renewable Energy (RE), Illinois State University. David Kennell, a solar advocate and 'doer' since the 1970's, is the RE Program Coordinator. When developing the RE program, an advisory group comprised of renewable energy experts and potential employers tried to anticipate what jobs might be available in Illinois as the renewable energy field continued to emerge. According to Kennell, "When we developed the program four years ago, there were only a few similar programs in the country. Renewable energy was still not on a lot of people's radar. There weren't even any wind turbines in Illinois. Things changed very rapidly - Now Illinois has 1,000 megawatts of wind power."

The RE program is designed to prepare its students for management level positions within industry and regulatory agencies in the areas of solar, wind, and biofuels. I have great confidence in the skills I will gain from this program. Ronnie Gadzke agrees that "technical skills alone are not enough" in her experience. Enabling solutions to be implemented requires working effectively across boundaries. There is need for professionals to understand the federal, state and local financial incentives, the solar resources (insolation), and the technologies." However, in order to safely and successfully install solar PV systems, an installer also needs to learn the language, tools, and concepts of general construction and electrical trade. The primary options for getting this technical training include hiring on with an electrical contractor to learn the trade privately or enrolling in an electrical apprenticeship program. "Ten years ago it was easier for someone interested in solar to volunteer for a company and get handson experience that way. Now it's not so easy because of liability. I haven't heard of many people volunteering with private companies in order to learn on-the-job," says SEI's Weis.

Electrical Apprenticeship, Bloomington-Normal Joint Apprenticeship Training Committee (BNJATC) Program. According to the International Brotherhood of Electrical Workers (IBEW) website, "for nearly a decade, the National Joint Apprenticeship Training Committee (NJATC) has incorporated renewable energy into the curriculum in many of our 300 training centers in North America. At many universities you can use your electrical apprenticeship training to help get a college degree. The American Council on Education recommends that graduates of the NJATC inside apprenticeship program receive 55 college credits." ISU's Kennell says "The classes are not likely to transfer for credit at ISU," but Renee Riddle, an electrician in the trade for 28 years and BNJATC Program Director, confirmed that "The apprenticeship program is an accredited program at Heartland Community

## Charting your path to a Career in Renewable Energy

College" in Normal, IL. "Apprentices get education credits that may be used toward an Associate in Applied Science." The BNJATC program teaches renewable energy aspects in the curriculum, but is not set up to instruct apprentices on the technology in a hands-on environment. Over the next few years, Riddle is hoping to secure stimulus grant funds and equip the Program's
to solar installations upon your demand." says Gadzke. "I have not seriously considered an apprenticeship. I intend to earn my full NABCEP certification and feel that will suffice so long as I can get sufficient installation opportunities to sit for the exam. With that certification,
professional opportunity should exist." Lee has considered an electrical apprenticeship

laboratory with solar and wind technology. There are currently no apprentices in the program who are interested in solar, nor does she know of any apprentices assigned to solar installation companies in the area.

Although the apprenticeship program in Bloomington-Normal is still a year or more away from teaching hands-on aspects of solar PV, learning the electrical trade would be a huge asset. SEI's Weis said that becoming an electrician was the best road for her to take because she wanted the field installing systems. Lee and Gadzke agree that becoming an electrician is a solid way to go; however, each has chosen a different path to get the necessary technical experience and consider becoming NABCEP certified to be more important. NABCEP, the National American Board of Certified Energy Practitioners, offers two solar PV certifications - Entry Level Certificate of Knowledge of Solar PV Systems and Solar PV Installer. SEI offers it's solar PV class participants the opportunity to sit for the Entry Level exam and most of the women's class took advantage, including Lee, Gadzke, and me. NABCEP also offers certifications in solar thermal and small-scale wind installations.
"Electrician certification is a powerful credential and would likely give you access
as well, although "with my new job, I'm not sure that I will be able to schedule it. I think that it is very important though and the more I think about it, the more I want to do it. The company I'm with is willing to send met to additional training and help me pursue my NABCEP Certification."

Opinions among the people I spoke with are split on whether it's more difficult for women to get solar PV experience. I tend to agree with Ronnie Gadzke - "I always choose to believe that it is an even playing field."

Solar and other renewable energy education classes are offered by many non-profit organizations nationwide. My experiences with ISEA and SEI were invaluable, and I intend to pursue higher level training with both organizations. The training I received at SEI was unique in that it offered both classroom and handson education. In addition to the more formal avenues for gaining solar PV
knowledge and experience, it's equally important to stay abreast of new information about the industry. Weis seconds this notion. "Stay abreast of new equipment and know what's going on in the field. Publications such as Home Power and Solar Pro are good ones to help you stay up to date. Read as much as you can!" The ideal PV learning experience, however, is to be a 'doer' - install a system for your own home with the help of professionals and be involved in every aspect of the project. If that's not possible, research your renewable energy interests and write about them!

There are many options, but as my friend Ronnie Gadzke says, "...no one has a crystal ball, so the best educated guess you make in conjunction with speaking consistently with relevant parties is about the best anyone can do. It is ALL progress." My fellow travelers seem to agree on one thing; the time is now for a leap of faith from our fossil fuel precipice. We will bring renewable energy to the world one way or another. The opportunity to work in renewable energy can be a reality for any passionate person who is willing to act and persevere.

> Shannon Fulton works as a hydrogeologist for an environmental consulting firm in Bloomington, IL while retooling for a future in renewable energy.


# THE YEAR OF THE SUN 



Left, Host,Travis Bradford, President of the Prometheus Institute and Author of "Solar Revolution". Right, James Greenberg, Guest Speaker, head of Reed Smith Renewable Energy group in Chicago, and founder of the Midwest Alternative Energy Venture Capital Forum.

"I hope and trust we are standing at ground zero of what will become the heart of the solar movement."

James Greenberg

Reed Smith Renewable Energy Group

The ISEA had a great networking fundraiser this past August hosted by Travis Bradford, President of Prometheus Institute, a global photovoltaic consulting organization, and author of "The Solar Revolution" who discussed the potential growth of solar power in Illinois and the Midwest.
Featured guest speaker, head of the Renewable Energy Group at the Chicago office of the international law firm ReedSmith, James Greenberg pointed to the $40 \%$ increase in PV installations in the US between 2006 and 2007 and a jump of $50 \%$ between ' 07 and 08 .

He notes that energy investment by the private sector went up as well, $40 \%$ of it in solar technologies.
But he added, the market crash did not spare the solar sector.
Greenberg, believes that despite recent set backs due to the economic crunch, the solar industry will emerge even stronger than before.
He suggests as the government continues to show support and public demand increases, the combination will help the renewable energy industry grow.
with Sarah Pagliuzza

Photos by Dan Rangel


## Hค\&

The Lake Shore view out the window of the Prometheus Institute office was as glorious as the promise of solar power


## Great TurnOut

Over 70 people attended for a productive evening at a beautiful location with great food, great people and great ideas

ISEA Business Member and attorney Frederic Prohov (center) talks with Rock River Times Publisher Frank Schier


Two of ISEA's Board Directors, Jim Gill (4th from right) and Jeremy Jones (2nd from right) get an earful from the crowd."

Erik Holston opened Solar Electric Inc. in Thornton, in 2007 after a career as a certified electrician. And while his company still handles the basics of the business; lighting, power, data, fire alarms and other high level electrical work, more and more, his business is going solar.

About ten years ago, Holston began studying solar
technology, first as a hobby, then in classes from his union, IBEW, The Midwest Renewable Energy Association in Custer, Wisconsin, and ISEA.

His background in electrical construction gave him insight into this new and growing field. Photovoltaics (PV) is, at core, simply another way to create a commonly used commodity; electricity. He could build on the expertise he already had and take it in new directions.

Holston knew that the costs associated with getting into the solar industry remained a barrier, but he also knew there was a change coming for the industry.
"It really got easier after the (Presidential) election. People knew there'd be more government support. I started getting more and more calls. I made an effort to contact architects to work on the design side of projects, and that has worked out well."

Now with projects in his portfolio that run the gamete from utility grid tied systems to stand-alone systems, Solar Electric Inc. focuses mostly on larger corporate installations but also puts in solar arrays for homeowners.


Holston says it's important to be clear about the costs and how the systems work without being too technical for people to understand.
"I find a lot of new customers have done their own research and educated themselves, so the first thing we do is listen to them to see where they are and what their goals are.

His company also has an energy management division. "The second thing we do is tell them how they can lower their energy usage. This helps them lower the size of the array they will need and it lowers the cost of that system.
"There are 3 reasons people buy our services.

1. Your services can save them money
2. Your services increase their bottom line
3. Your services lower their 'risk' due to the quality of the services you provide

One potential risk is that bills for conventional energy use will go higher in the future and that is where adding solar can improve a client's bottom line. "The great thing about PV is that it is guaranteed to pay for itself, what varies is the payback
time. We do a model for payback for each customer. The average is around 9 years."

That may sound like a long time, but at the end of that time, owners of PV systems can have electricity essentially for free. And for most early adopters, the desire to go solar is as much of an environmental issue as it is a cost issue.

Solar Electric, Inc. partners with Aldridge electric out of Libertyville. A larger company specializing in wind power, Holston calls the people at Aldridge his mentors

While Holston is pleased to see the coming of what is being called the green revolution, he is concerned about what might be overlooked in the rush to bring it about. He knows the power and the dangers of electricity. He is concerned that if people getting into the field do not have a proper understanding of the principles, it could lead to problems. He doesn't want to see anyone get hurt.

Holston says that often on projects "we have to really teach the inspectors." As a member
(continued on next page)

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of the South Suburban Electrical Inspector's Association, he knows that solar electricity is still a little known field and a small part of the electrical business.

Change is difficult. New methods and technologies are only part of the challenge. Going solar demands that consumers change the way they think about electricity. "People are used to the old model. You write out a check each month to the power company," says Holston. "But if you think about the long term, you keep paying that 150 or up each month and you will ultimately have paid what it would have cost you to put in a solar array but instead of owning a system, you'll still just be owing energy bills."

He points to the experience of a homeowner and client who, like many people, has a house that is empty during the day. So during the day, his electricity meter spins backwards when the house produces more power than it uses and through the net metering program, sells the excess electricity to the local utility. Solar Electric Inc. sets up the tie in with the utility as part of the installation process.

But Holston acknowledges that not every home is built for solar. Some may not have enough southern exposure or there may not be enough room for solar panels. And that is why he believes that perhaps the only way solar will really reach the masses is through larger projects of ten megawatts or more which will produce enough clean energy to supply neighborhoods and communities.

One of his homeowner clients in Frankfort runs $100 \%$ off of the PV Array during the day while the children are at school. The meter spins backwards -- that is, until the kids come home. The homeowner is able to achieve this even though he has only a 2.5 kw system.

One of the things Holston would most like to see is prices for the equipment coming down. "With silicon being so abundant, the costs are so high." he says. A 200 watt panel costs roughly $\$ 900$. If costs could come down on the panels or if there are increase in the rebates, he believes that would spark growth

And that's what Holston, who lives in Evergreen Park, with his wife and three children, is counting on. That, and an improvement in the economy, which will allow people to feel comfortable about making an investment in clean energy. "It's difficult when people don't have the money or the credit to take that first step, he says." That too, is part of the new way of thinking about solar power; getting your mind around the idea of paying up front for an investment that will pay you back in the future, instead of the other way around, which is in part, what lead to the current financial crisis.

Erik Holston is a member of the Illinois Solar Energy Association's Board of Directors.


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## ISEA Member News

## Opportunity Shines on Illinois Solar Energy Generators

People who own renewable energy systems anywhere in Illinois are now eligible to earn an additional $\$ 65$ for each mega-watt hour mega-watt hour'"(1,000 kilowatt-hours ( $k W h$ )) of electricity they make.

Community Energy Inc (CEI) is asking owners of all photovoltaic electricity generators for their Renewable Energy Certificates (REC's) from 2009 generation. These solar REC's will be used towards the City of Naperville's Renewable Energy Program to help fulfill the photovoltaic portion of the program. Participation in Naperville's innovative plan is open to renewable energy producers from everywhere in the state of Illinois.

But there are some requirements; photovoltaic systems must be gird-connected.
System owners must be members of the ISEA, either as an individual or family for a residential account, or as business members for commercial accounts.

While any system size is eligible, the ISEA is giving priority to system sizes of 10 kilowatts alternating capacity (KW $A C$ ) or smaller.

If you would like to submit your solar REC's for consideration, please email ChristopherPell@mac.com or contactisea@illinoissolar.org:
Solicitations will be accepted until November 30, 2009, but may be cut off any time after that.

## Illinois Solar Energy Association Board of Directors

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 Count : 618Heliographs is published quarterly by Illinois Solar Energy Association and edited by Robbie Harris.

Robbie is the Principal at Lucid Dream Communications which focuses on issues of energy and the environment.
luciddreamcommunications.com

Membership information, updates, and assistance in locating resources can be obtained at www.illinoissolar.org

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## ISEA PRESIDENT'S CIRCLE MEMBER

## Shamrock GREEN Electric

Shamrock GREEN Electric, a division of Sedco/Shamrock Electric, Inc., is dedicated to installing systems powered by renewable energy. Solar energy is currently the most cost-effective way to generate your own energy and regain more control over your energy costs.

Two of the top advantages to solar energy are tax incentives and the opportunity to sell energy back to the utility. Plus, as technology advances, the payback time on a complete system continues to shrink.

Shamrock GREEN Electric has partnered with Solar Network to be our design consultant and SunWize Technologies to be our equipment supplier. All together you can have a turn-key approach to designing and building solar system that's right for you. Turn to Shamrock GREENElectric.

With half a century of success in the greater Chicagoland area, Sedco/Shamrock Electric, Inc. and its subsidiaries is a leader in electrical contracting for the full range of energy/electrical projects. From design/build to retrofitting, Shamrock Electric is your source for expert, safe, and high-tech energy/electrical contracting.

You're looking for sharp customer focus, superior workmanship and excellence in project design, management and budgets from an electrical contractor. You'll get these results and more from Shamrock Electric - one of Chicagoland's and the Midwest's top electrical contractors.

You've probably heard about Shamrock Electric and its strong reputation for reliability, attention to detail, competitiveness, and forthrightness in doing business. For nearly 50 years, word about Shamrock Electric has spread from our numerous, enthusiastic customers - the majority of which being loyal, repeat customers from all areas of building design and construction.

You want more than competitive bids on quality, service and price. You want high value for your investment. You want Shamrock Electric. Please tour our Web site to learn more, then call us about your next project. It would be our privilege to work with you.

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#### Abstract

With roots stretching back to the 1930s, Hardt Electric has prided itself in providing superior service. Throughout that time we have embraced new technologies and expanded our capabilities preparing us for the entire range of renewable energy resources. Our partnership with Tim Wilhelm of Wilhelm engineering a

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