

HELI GRAPHS

www.illinoisolar.org

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ISEA Tours Illinois' First Wind Farm

ISEA's Fall Membership Meeting at the Mendota Hills Wind Farm was a great success! More than 60 people enjoyed refreshments, networking and above all, the tour of Illinois' first operational Wind Farm.

Each of the 63 wind turbines produce 800 kW; the total capacity of the entire farm is 50.4 MW - enough to provide the annual electricity needs for approximately 15,000 average homes.

Each tower is 207' from the ground to the center of the rotor. Each blade has a length of 81'.

We wish to extend our deep thanks to the community of Paw Paw, and Pearl and Elmer Rhoads for graciously hosting our meeting.

Thanks also go out to members Chris Sharp and Fred Orchard for planning an excellent outing.

Ted Lowe
Treasurer, ISEA

Higher Rebate Limits for Illinois Renewable Energy Systems

The Illinois Department of Commerce and Economic Opportunity (DCEO) is pleased to announce the immediate availability of revised guidelines for the Renewable Energy Resources Rebate Program. The DCEO rebate program has successfully contributed to the stable growth of the solar thermal industry in Illinois over the last several years, and the revised guidelines are intended to allow the solar industry in Illinois to continue to expand into new markets.

Significantly, the program now offers a maximum rebate of \$10,000, allowing numerous small business applications to fall within the effective range of the program. We are optimistic that the new guidelines will help continue to expand the industry, create jobs, protect Illinois businesses and residential customers from higher energy prices, and preserve the environment.

Rex Buhrmester, IL DCEO

From the DCEO Renewable Energy Rebate Program:

"The Department may provide up to, but not more than, the following funds for single Photovoltaic or Solar Thermal systems: 50 percent up to a \$5,000 rebate for the first \$10,000 of eligible project costs, and 25 percent thereafter up to a maximum rebate of \$10,000.

The maximum rebate amount of \$10,000 is reached at a project cost of \$30,000.

Projects with a total value exceeding \$50,000 are ineligible."



2004 Illinois Solar Tour: A Tremendous Success

One of the most successful solar tours in the country, the 5th annual IL Solar Tour was well attended, with more than 300 people in the Chicago metro area alone. Six regional tours throughout the state featured more than 60 homes and/or buildings utilizing solar energy.

Sunny skies and cooler temperatures provided optimal conditions to demonstrate and promote the use of renewable energy via solar thermal, photovoltaic, passive solar, and wind systems.

Thanks to all the hosts, organizers and sponsors (IL Solar Energy Association and the IL Clean Energy Community Foundation, Solar Service, Inc., ISEA) that helped make the tour a success.

Jim Camasto, ISEA

ComEd Factoid

Through October 30, 2004: ComEd reports 146 solar and wind interconnections in its service territory, with 1,422 KW of solar and 50,523 KW of wind capacity (50,400 KW from the Mendota Hills wind farm.)



IIT Students Visit Shabazz School's Solar Installation

On October 7, 2004, Brandon Leavitt guided students from IIT Professor Nancy Hamill's IPRO 328 class. The class' focus was Solar Thermal Applications for Large Scale Buildings. The students got to go on the roof and see first hand how the panels and supporting equipment are constructed and how they work. They also saw the solar heat exchanger and storage unit in the mechanical room and learned how solar heat can be delivered through an independent fan-convactor unit installed in the school's hallway. Students were excited to see how well solar works in Chicago and communicated their commitment to promoting renewable energy.

Solar Service Inc., of Niles, IL recently completed the installation of the solar thermal system for the Betty Shabazz International Charter School. The newly opened school was founded by a group of citizens (educators, entrepreneurs and community activists) who shared a long time commitment to the education of African American children – especially those living in urban communities. The school is located at 7823 South Ellis Avenue, currently serving 295 students in grades K through 8.

This new 240 ft² solar thermal system is designed to produce over 300 gallons of hot water a day. On completion, the system will provide a substantial amount of hot water for the school as well as supply heat through a fan convactor wall unit located in a hallway entrance between the school cafeteria and the locker and washroom facilities.

("Shabazz Solar" continued on page 4)

ISEA Winter Membership Meeting Saturday, 12/18, 10am – 1pm

Come join the ISEA at the **Chicago Center for Green Technology** for a screening of the documentary film:

The End of Suburbia: Oil Depletion and the Collapse of the American Dream

After viewing this eye opening film, we will discuss topics such as Peak Oil, Energy Awareness and preparing for a Post-Carbon world.

You don't have to be a member to attend - so invite your friends, family, neighbors, colleagues, politicians, clergy, etc.

More information is available at: www.endofsuburbia.com

Agenda:

- 10:00 Networking with light refreshments
- 10:15 ISEA Business, Nominations for 2005 Board of Directors
- 10:30 Begin film (78 min total)
- 11:15 Intermission
- 11:25 Complete film
- 12:00 Discuss film and issues raised

Copies of the DVD will be available for purchase, so you can share this information with your friends, family, and colleagues. RSVP's are appreciated so we know how much food to purchase.

For more information, contact:
Ted Lowe
info@illinoisolar.org
(630) 260-0424

**Chicago Center
for Green Technology
445 N. Sacramento Blvd.**



LawN Order – PV Letter from the ISEA President

Renewables like solar electricity are slowly, stubbornly it seems, making its way into our daily lives. One of these latest niches is a revival of solar powered yard lights. In a way, these little items typify the results and challenges of our industries. It seems about every tenth house (at least in the Oak Park area) have recently installed one or more of these stand-alone, battery powered lights.

They are of a newer generation; unlike the earlier ones, the quality of the structures are more attractive, the light they give off appears improved, and the PV looks much more reliable, not succumbing to delamination, where the protective coating comes off the cells.

When they are in a reasonably sunny location, they give off light for at least a few hours a day, unless they enter a multiple string of cloudy days.

People I've talked to seem generally satisfied with them, and they consider the 20, 50 or 200 dollars spent to be worth it. They especially like the idea of not tearing up their lawn, leaving cables all over the place or paying a contractor for lights on their lawn, even if the performance is less than 24/7.

A few of these homeowners are thinking about the next step, panels attached to their building for electricity, heat or hot water. Sticker shock still daunts them, but the idea of generating their own energy causes them to keep the matter in mind. We shall see how these little lawn lights raise awareness and build markets.

And awareness and markets do grow. Gas prices are receding, but remain high enough to stick in people's memories, while more hybrid car models are being offered.

With the production tax credit finally passed, the US wind industry can finally get going, providing, among other things, Illinois' second commercial wind farm in Crescent Ridge, propelling our state into three digits of capacity.

("LawN Order" continued on page 4)

Over 90% of Small-Scale Renewable Energy Owners Not Aware of Green Tag Potential

A survey by Mainstay Energy shows that less than one in ten small-scale producers of renewable energy are aware that they have title to green tags, or that these tags can be sold for extra revenue.

Chicago, IL - The big guys already know it-green tags can be used to earn an additional \$1-\$100 per megawatt-hour of electricity produced from renewables, whether by solar photovoltaics, wind, biomass/biofuel, geothermal, or hydropower.

But according to a recent survey of small-scale renewable energy site owners, only 9.2% of site owners know what a green tag is. And only 6.3% know that green tags can be sold for extra revenue.

Green tags are environmental certificates that represent the positive attributes of renewable energy. These tags become separated, or "unbundled," from the actual electricity at the point of generation, and can be sold independently.

Almost any renewable energy installation that is grid-connected and less than five years old is eligible to receive green tags. These tags are traded on national markets. However, most smaller-scale renewable energy installations have been unable to capitalize on green tags, because either they did not know about them, or their sites are too small to produce a marketable quantity of green tags.

Mainstay Energy, a renewable energy financing company headquartered in Chicago, is introducing a program to purchase green tags from small-scale renewable sites, enabling site owners to earn this extra revenue from their installations.

CEO Hoyt Hudson explains, "Mainstay Energy is the first company in the U.S. to offer a national program to purchase green tags from small-scale renewables. We are excited to be providing this valuable service that allows small-scale

sites to participate in national environmental markets."

"The 'Rewards' program from Mainstay Energy offers a way for renewable energy to be even more practical than it already is," adds Hudson. "The sale of green tags accelerates the payback time on almost any grid-tied renewable energy project, usually between 10% and 50%."

Even among people who understand what green tags are, there is confusion about when a site is eligible to receive green tags. For example, a site can receive green tags even if it is not "exporting" electricity to the grid; the fact that a site is offsetting grid electricity is what counts. Also, sites are eligible for revenue from green tags even if they are in a net-metering agreement with their electric utility.

The green tags purchased by Mainstay are aggregated and brought to market as "Green-e" certified wholesale and retail products. Green-e is a voluntary certification program established by the Center for Resource Solutions, a national nonprofit organization that encourages sustainable growth and promotes the use of renewable energy. Green tags are becoming increasingly popular as a way for companies, government agencies, and individuals to support renewable energy.

SOURCE:
Mainstay Energy
161 E. Chicago Ave., Suite 41 B
Chicago, IL 60611 1-877-GREENTAG
info@mainstayenergy.com

The End of the Age of Oil

What: Fermilab Colloquium:
Out of Gas: The End of the Age of Oil
featuring author, David Goodstein,
for a discussion on Peak Oil.

When: Wednesday, 4pm - 5pm
February 9, 2005

Where: Fermilab, 1 West,
Solargenix Kirk and Wilson Roads,
Batavia, IL

For more information, contact:
Ted Lowe
info@illinoissolar.org
(630) 260-0424

Solar Thermal Rules!

Solar thermal systems have been around commercially longer than photovoltaic or wind power systems, and it was presumed that they converted more energy. But there was never a quantifiable way to prove it. That has now changed.

A recent report by the International Energy Agency (www.iea.org) came up with a methodology that estimates solar thermal installations (from glazed, unglazed and evacuated tubes) totaled over 69,000 megawatts (MW) capacity as of 2001, equal to over 100 major power plants. This compares to about 23,000 MW of wind power and 1,100 MW of PV installed by the same year.

The U.S. has over 17,000 MW of solar thermal capacity, about 16,000 MW of it unglazed (mostly for swimming pools), 1,000 MW glazed (mostly water and space heating) and over 300 MW of evacuated tubes (mostly process heating and power generation).

SOURCE:
Solar Heating Worldwide: Markets and Contributions to the Energy Supply 2001,
IEA-SHC 2004
www.iea.org

ISEA Board Member Featured in Tribune

ISEA board member Brandon Leavitt was featured in a Chicago Tribune "On the Job" story on October, 22 2004. Author Leslie Mann does a wonderful job explaining how solar thermal systems work, the costs and benefits, and features a history of Brandon's successful solar career that began in 1975. The article also mentions the ISEA and includes a great photo of a Solar Service customer in Deerfield.

Demonstrating and encouraging public interest in solar, the company received over 100 solar inquiries after the article was published. If interested, please contact ISEA or Solar Service for a full copy of the article:
www.solarserviceinc.com

Sharon Stuertze, Solar Service, Inc.

Burned (solar) Laundromat Will Return, Owner Says

Tom Benson said buying the World's Largest Laundromat & Cleaners in Berwyn five years ago was like buying a piece of history. Spread out over half a city block on a busy stretch of Cermak Road in Berwyn, the 24-hour laundromat stood for more than 50 years before a fire Sunday afternoon ripped through the building.

"From the moment I bought that place, I thought, this is sacred ground," said Benson, a former broker who in '99 was trying to sell the business when he fell in love with it & bought it. "Now, it's totaled."

Berwyn police said Tuesday the fire is thought to have been caused by malfunctioning equipment, possibly a dryer. No one was injured in the fire. But more than 275 washers and dryers were destroyed, as well as about 30 patrons' clothes, and residents were left wondering whether the laundromat would close for good.

Benson said Tuesday he plans to rebuild and improve the building. "I've had people walk up the street and yell at me, saying 'You better rebuild it,'" Benson said. "That feels good, to know that people care."

Residents who watched firefighters battle the blaze Sunday said the business was the best laundromat in the area, with friendly service and a true community atmosphere. It was a place where people went for free coffee and doughnuts in the mornings and free pizza on Wednesdays. Regulars to the business knew Benson, who gave them coupons for a free wash.

Benson said that the building was insured and that he plans to hire an architect to redesign it. A solar-powered water-heating system built on the business' roof, lauded by environmentalists and Lt. Gov. Pat Quinn last year, also will be rebuilt, he said.

When the business is back, Benson said he plans to throw a party to thank the community for its support. "We'll throw a grand opening you wouldn't believe. It'll go for a week," he said.

SOURCE:

By Angela Rozas, staff reporter
Copyright (c) 2004, Chicago Tribune

Notice of 2005 ISEA Board of Directors' Nominations and Elections

Nominations for four ISEA Board of Directors' positions due to expire this year are being accepted by mail, email, or in person up to the conclusion of business at the 12/18/04 membership meeting. All current, full ISEA members (of at least one year) are eligible. Self nominations are welcome.

Upon conclusion of the business portion the 12/18 meeting, ballots will be made available to ISEA members in good standing. Members unable to attend will be mailed a ballot for return within 2 weeks.

Mail or Email your nominations to:

Illinois Solar Energy Association (ISEA)
P.O. Box 634, Wheaton, IL 60189-0634
info@illinoissolar.org

"Shabazz Solar" (...continued from page 2)

The system is designed to produce over 300 gallons a day of 120° water. This assumes an incoming water temp. of 50° with a 70° temperature rise.

Studies show that the system is expected to operate in Chicago at 100% of design performance 70% of the year. The building will always have hot water, with the solar system acting as a pre-heater to its existing water heater. The solar thermal system will be the building's primary hot water supplier. In addition to supplying hot water for the building, the system will also supply heat for the school through a wall-mounted heating unit, located in a hallway entrance to the cafeteria. This system will save approximately 4 therms of natural gas each day (70 KWH in equivalent thermal energy). Based on 70% annual performance, the solar system will save over 1000 therms each year (16,800 KWH thermal equivalent).

This solar thermal installation was made possible with the generous grants from the Illinois Department of Commerce and Economic Opportunity and the Illinois Clean Energy Community Foundation.

Sharon Stuertze, Solar Service, Inc.

"LawN Order" (...continued from page 2)

We await how the Illinois Renewable Energy Trust Fund, which finances the Department of Commerce and Economic Opportunity's grants and rebates, survives the Fall veto session, and how the Clean Energy Community Foundation changes its leadership and possibly its policies.

Worldwide, 2004 might be the first year that over 1,000 megawatts of solar cells and panels may be manufactured. Closer to home, solar heating panels manufactured in Illinois are coming off line in Solargenix's South Side Chicago factory.

On December 18th, at the Chicago Center for Green Technology, we will be showing the film "End of Suburbia", how the end of cheap oil will radically alter this post-World War II phenomenon.

These changes will come, however the results of the past election play out. In its way, "End of Suburbia" is as radical as "Fahrenheit 9/11", and we plan on having speakers from the Congress of New Urbanism lead a discussion on what we can do about the post-cheap-petroleum age that is coming upon us.

I look forward to new nominees to the Board of Directors and our growing corps of volunteers. I hope to see you, and in any case, have a wonderful holiday season.

Mark Burger
President, ISEA

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Membership information, updated information, and assistance in locating other resources can be obtained on the ISEA website: www.illinoissolar.org

Comments & questions directed to:

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(630) 260-0424

P(V)ink Cadillac

Last Tuesday evening, I sat in Uris Auditorium with great anticipation to listen to Steven Strong give a lecture about sustainable solar building design.

Steven, founder of the engineering and design firm Solar Design Associates, is regarded as the "father of solar energy," so I was eager to hear what he had to say. Much of his presentation consisted of him showing pictures of the buildings that Solar Design Associates have built or retrofitted using photovoltaics (PV).

But, Steven's talk was not just a slide show of "green" buildings. He also discussed his main motivation for the use of PV - the world is going to run out of oil within the next ten years so we need to quit our "petroleum addiction" now.

But it was not his main idea that stuck with me the most. It was his point regarding the disparity between architectural design and its return on investment (ROI) that has really kept me thinking.

His argument was that architects routinely design buildings with features that provide little or no ROI, all the while ignoring "green" building features, such as PV, which provide both financial and environmental returns.

To demonstrate this, he showed a picture of an old '70s Cadillac that was built into the second floor corner of a Hard Rock Café. The Cadillac, slightly angled over the entrance to the restaurant, serves absolutely no obvious functional purpose (there was a normal awning directly under the car) but surely cost thousands of dollars to design, engineer, and install. Aesthetically, it looks sort of cool, but also kind of odd.

So, what is the return on the investment of building a car into the side of a restaurant? Hard Rock would probably argue that the Cadillac serves as a beacon to passersby, luring in patrons. Or maybe it is to differentiate themselves from competitors. I would guess though, that the ROI is pretty close to zero. And so, I went to bed last Tuesday night, ruminating about how much "wasteful" architecture there must be. The next morning on my way to

class, I walked past the engineering quad, and gazed upon what I now consider to be Cornell's biggest Cadillac: the big, rectangular, cantilevered conference room hanging off the side of Duffield Hall's top floor.

First off, it has no real functional value other than giving room attendees a better view of Upson Hall and the Sage Hall parking lot. And aesthetically, whenever I see it now, I think of a big zit popping out over an otherwise clean face. And mind you, an addition of that kind is trivial neither financially nor structurally. Its construction undoubtedly added extra time and money to the project.

So, what is the ROI of this conference room? Are more researchers going to come to Cornell to do their nano-fabrication research? Are more alumni going to donate to Cornell? I doubt it. One would have to question the University's priorities for deciding to go ahead with this design feature.

Duffield is an energy giant; it increased the campus's energy load by five percent. An example of why it increases the load so much is that in order to keep an ultra-clean research environment, large, expensive fans, filters, and ducts are needed to circulate more than 10 to 20 times the amount of air provided in a regular laboratory.

Two key components of sustainability that Steven outlined are energy conservation and renewable energy production. As for the former, consider if Cornell had used the Cadillac money to use passive solar design to shade the windows on the west-facing wall to reduce the building's cooling costs. Or, for the latter, to install PV panels on Duffield's roof to reduce the building's net energy consumption. Both would garner financial and environmental ROI.

Of the above two components, Cornell has thankfully taken steps elsewhere on campus toward energy conservation, such as Lake Source Cooling and the formation of and efforts taken by the Kyoto Task Team. ut, Cornell is yet to produce a kilowatt of renewable energy. Like a broken record, the Cornell administration perpetually sings the "PV has a bad ROI" song. The paybacks are

just too long for them to support any such proposals.

But, there is hope. Over this past summer, the family and friends of Abigail Krich '04 created the Cornell Solar Fund specifically to ameliorate Cornell's financial ROI on a PV project. The Cornell Utilities office administers the Solar Fund and its money is allocated to projects under the guidance of Cornell's Manager of Engineering, Planning, and Energy Management in conjunction with the Kyoto Task Team.

In order to encourage Cornell to be a partner in the campus's mission toward sustainability, the Solar Fund was created to subsidize -- not outright pay for -- Cornell's increased cost of installing a PV system.

If enough money is raised, the first allocation of Solar Fund money could go to installing PV on the West Campus Community Center that is to be built in a few years. In conjunction with Steven's talk, students from Kyoto Now! have been working tirelessly to raise money for the Solar Fund. In the last week alone, over \$1,400 were raised, bringing the current Solar Fund total to almost \$12,000. Everyone can help by making a donation, big or small.

Students can even "Cornell Card" donations to make it easier. Not only is the quantity of money raised in the Solar Fund important, but also almost equally important is the participation level. If a significant portion of Cornell students, faculty, staff, and alumni were to donate, it would prove to the administration that sustainability is important to the Cornell community and must become a priority.

SOURCE:

Doug Mitarotonda

Graduate School of Economics:

dcm14@cornell.edu

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- J. Bohmann, Antioch, IL



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WINSTON SERIES COMPOUND PARABOLIC SOLAR COLLECTOR (CPC)

SELECTED TOP-10 PRODUCT FOR 2004

November, 2004

The Winston Series Compound Parabolic Collector (CPC) Solar thermal Collector, manufactured by **Solargenix Energy, LLC** has been selected as one of the 2004 BuildingGreen Top-10 products. This annual award recognizes the most innovative and exciting green building products added to the GreenSpec® Directory during the past year.

This year's BuildingGreen Top-10 covers a wide spectrum of products and applications. Some are used primarily in commercial buildings, others in houses. Some are considered green because they utilize renewable energy, others because they avoid toxic chemicals or are made from recycled or independently certified green materials, and still others because they save energy or water.

A big driver in the development of green products is the U.S. Green Building Council's LEED® Rating System (Leadership in Energy and

Environmental Design), which awards points for certain product characteristics or the energy or water savings they can achieve. Designers of LEED buildings are looking for green products, and manufacturers are responding, said Wilson.

The Winston Series CPC solar thermal collector is the most advanced solar thermal product on the market. Manufactured at the Solargenix facility in Chicago, the collector is used for solar water heating, space heating, industrial process heat and solar cooling projects. The advanced science that allows the parabolic collector to be designed as a building integrated flat plate collector is the patented non-imaging optics developed at the University of Chicago by Dr. Roland Winston who now is on staff at the University of California at Merced.

The Winston Series CPC collector is the only solar collector used in the Solargenix water heating product line of active and passive solar heating systems. The aesthetical design, integrated mounting systems and

quality materials gives builders and designers flexibility in use and installation of the solar collector array.

GreenSpec is the leading national directory of green building products. The 1,800-plus products included in the directory are selected by editors of Environmental Building News (EBN) based on criteria developed over the past 13 years. Environmental Building News, founded in 1992, is the oldest and most widely respected publication in the green building field.

Manufacturers do not pay to be listed in GreenSpec, and neither GreenSpec nor EBN carries advertising; both are supported by users of the information. This policy of not accepting money from manufacturers allows us to be objective in reviewing products for inclusion, said Wilson. GreenSpec is available as a print directory as well as part of a web resource, the BuildingGreen Suite.

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UPCOMING EVENTS

- December 18th** (Saturday) ISEA Winter Membership Meeting
Chicago Center for Green Technology
(see page 2)
- February 9th** (Wednesday) Fermilab Colloquium:
Out of Gas: The End of the Age of Oil
(see page 3)

Current Members: To keep ISEA costs low and to save the environment, ISEA does NOT send annual dues invoices. Please check the address label on this edition of Heliographs! If the date on the label is highlighted, then your dues may be overdue. Use the enclosed application to mail your renewal. Thanks!



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