

# HELI GRAPHS

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

Newsletter of the Illinois Solar Energy Association March 2005, Vol. 24, No. 1

## SEIA Provides Congressional Testimony



Testifying before the House Energy and Air Quality Subcommittee, solar industry leaders

presented lawmakers with a proposal to help ease the looming natural gas crisis, create 42,000 new jobs in the next decade, and make solar the economic choice for millions of Americans.

The Solar Energy Industries Association (SEIA), representing over 20,000 employees in the U.S. solar industry, said that the Energy Policy Act of 2005 should contain strong growth provisions for solar energy as part of a balanced energy portfolio.

"This bill needs to be a 21st-century energy bill," said Rhone Resch, SEIA President. "We need to stop subsidizing 19th-century technologies and create markets for new, reliable energy sources. Solar power is a technology that can help meet our current energy needs, while strengthening America's economic and energy security for the future."

Polls show that more than 90% of Americans support the increased use of solar power, and Resch said that including solar-friendly provisions would help increase support for an energy bill.

With natural gas demand and prices skyrocketing, Resch told the House Subcommittee that solar power could displace 6 trillion cubic feet of natural gas by 2025 - saving American consumers approximately \$64 billion. "We have the highest natural gas prices in the world," said Resch.

("SEIA" continued on page 5)

## Kreider Services Goes Solar Thermal



Solar Service Inc. has completed a major solar installation for Kreider Services in Dixon, Illinois. Kreider is a non-profit corporation that manages residences and a large day care center for adults with developmental disabilities.

Solar thermal systems were installed on 10 group homes and a large day care facility in Lee County, that serves 350 people. These systems are designed to produce over 600,000 gallons of hot water each year.

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

Sharon Stuertze, Solar Service Inc.  
[www.solarserviceinc.com](http://www.solarserviceinc.com)

### ComEd Factoid

Through December 30, 2004:  
ComEd reports 155 Solar and Wind Interconnections in its service territory totaling 52,166.1 kW of capacity.

Including:  
50,400 kW - Mendota Hills Wind Farm  
1,638.5 kW - Photovoltaics  
127.6 kW - Small wind turbines

## Blagojevich Sends ICC Sustainable Energy Plan

 Plan requires Illinois utilities to generate at least eight percent of electricity from renewable sources by 2012. Aggressive plan expected to give wind power major boost.

CHICAGO - As he outlined in his State of the State address last week, Gov. Rod Blagojevich today submitted his proposal for an Illinois Sustainable Energy Plan with the Illinois Commerce Commission. The plan calls for greater use of renewable energy and energy efficiency that would create jobs, boost investment in rural communities, protect the environment, promote energy independence and help stabilize energy prices.

The Governor's proposed Renewable Portfolio Standard would require electric utilities or other electricity suppliers to provide 2% renewable energy to their Illinois customers by 2006, increasing 1% annually to 8% by 2012. This requirement would mean that nearly 4,000 MW of power be generated by renewable sources by 2012, enough to serve nearly 1 million Illinois households. At least 75% of renewable energy - or 3,000 MW - would be generated by wind power.

"While our energy needs continue to grow, we remain dependent on imported energy sources such as coal and natural gas to power our homes and businesses. The Renewable Portfolio Standard proposal will increase our use of Illinois' untapped renewable natural resources like wind power. Boosting our use of clean, renewable, homegrown energy will put Illinois on a path toward greater energy security," the Gov. said.

("Plan" continued on page 5)

## Wind Power Growing in Illinois



The present 50-megawatt (MW) Mendota Hills wind farm in Lee County (shown as a square) should soon be getting plenty of company in Illinois.

The 51-MW Crescent Ridge development in Bureau County is presently under construction (shown as a triangle).

In addition, the Environmental Law and Policy Center (ELPC) released a study in December 2004 that proposes an immediate, additional 1,244 MW to 1,544 MW of developments in seven other counties in northern, western and central Illinois.

Those developments of 10 MW or more (see table below) can generate as much electricity as 300-700 MW of coal-fired power without air pollution or draining water tables. The wind farms can also be significant job and business generators, and make Illinois a player in the growing Midwest market.

The ELPC has previously estimated that 6,800 MW is commercially feasible in IL.

Project	County	MW
Mendota Hills	Lee	50
Crescent Ridge	Bureau	51
	Adams-Pike	200
	Boone	100
	Carroll	80
	LaSalle	60
	LaSalle	22
	Lee	100-400
	McLean	432
	McLean	150
	Stephenson	100
	<b>TOTAL</b>	<b>1,345 to 1,645</b>

SOURCE:  
Environmental Law and Policy Center  
[www.elpc.org](http://www.elpc.org)

## Of Battleships, Snowdrops and Progress

### Letter from the ISEA President

The Kyoto Protocol became official on February 16th, while our nation's leadership continues to behave like battleship admirals before the Pearl Harbor attack. Besides issues of environmental consequence, one drawback is that we play catch-up in the clean power markets as we have in making hybrid vehicles. So if one is worried that adhering to Kyoto's pollution limits may cost jobs and business, maybe not adhering to controlling pollution will cost us jobs and business.

At last count, the solar and wind power businesses are estimated at over \$20 billion in 2004, with the various sectors growing 30-40% annually. The US share of clean power is around 10% and shrinking, while we consume about 30% of the world's polluting power. Maybe it's just me, but I always thought wise investment and policy means taking advantage of growing trends and getting out of old ones. Sort of like switching from battleships to aircraft carriers.

Nevertheless, with snowdrops coming up and baseball players reporting for spring training, progress continues for Illinois' renewable energy resources.

Governor Blagojevich's proposal for a Renewable Portfolio Standard comprising 8% of IL's energy from renewable sources, and requiring that 3,000 of the 4,000 MW comes from wind power will put renewable energy clearly in the public spotlight.

Also, keep an eye on Illinois Senate Bill 250, by Senator John Cullerton, which would mandate any building project to be financed under the state's Capital Development Board to be LEED (Leadership in Energy and Environmental Design) rated, and greatly increase the need of state-financed buildings to have a solar or other renewable energy system.

The second major wind farm in Crescent Ridge is going up, with a third one planned in Bureau County. The Illinois Department of Commerce and

Economic Opportunity has a Request for Proposals open for large-scale solar thermal applications. The Cook County Domestic Violence Court, the County's first LEED-rated building, will have the largest photovoltaic system on one roof in the Midwest. The City of Naperville launches a major green power initiative.

The Association has another great Membership Meeting planned for April 2nd in Oak Park, where a wonderful old house has geothermal heating and cooling and is planning for photovoltaic and building-based wind power systems. Hope to see you there.

Mark Burger, ISEA President

### ISEA Spring Membership Meeting Saturday, 4/2, 10am - 12pm

Come join the ISEA for a tour of a Geothermal home at the home of:

**Phil and Kathi Elwood**  
154 N. Taylor Ave  
Oak Park, IL

Come join us for this informative talk, discussion and tour of their Geothermal system and their future plans for an urban wind turbine and PV, as well.

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

#### Approximate Agenda:

10:00 Networking with light refreshments

10:30 Brief ISEA Business

10:45 Talk and discussion about Geothermal system, future plans

11:15 Tour of the Geothermal system; further discussion and networking

RSVP's are appreciated so we know how much food to purchase.

#### For more information, contact:

Ted Lowe  
[info@illinoisolar.org](mailto:info@illinoisolar.org)  
(630) 260-0424

## Stark County Wind Farm Proposal Nearly Complete

TOULON - Stark County officials are nearing completion of wind farm regulations in anticipation of a large project proposed for an area straddling the Marshall-Stark County line around the tiny community of Camp Grove.

The county's planning commission has been preparing a proposed ordinance, and a final version could be ready as early as next month, zoning administrator and supervisor of assessments Deborah Duncan told the County Board Tuesday night.

California-based Orion Energy is considering that area as the potential location of as many as 100 wind turbines, and 40 to 45 likely would be on the Stark County side of the line, according to company official Turner Hunt.

"It may not be windiest spot in the state, but it is a windy place, we believe," Hunt previously told the Journal Star. Now that crucial federal tax incentives for such project have been renewed, "We're trying to get this project in construction in 2006," Hunt told the board.

If completed, the project would have the capacity to generate power for the equivalent of about 35,000 homes, according to information presented at earlier meetings. The power would be carried through underground cables to a point about three miles west of Camp Grove, and then on overhead lines for about seven miles, Turner said.

Orion has been working with landowners to secure lease agreements where towers would be located, and "well over half" of those have been completed, Turner said after the meeting. He would not provide more detailed information.

The Marshall County Board approved a set of wind energy regulations late last year, and that ordinance is one of several that have been considered by Stark County officials in the course of drafting local regulations, Duncan said.

**SOURCE:**  
Gary L. Smith, Peoria Journal Star  
[www.pjstar.com](http://www.pjstar.com)

## A Physicist's View of the World's Energy Situation

Wednesday, 4/13, 4-5 pm

Fermilab Colloquium Presents:  
*A Physicist's View of the World's Energy Situation* by Dr. Steven E. Koonin, Chief Scientist, BP plc

**Abstract:** Ensuring adequate energy supplies in an environmentally acceptable manner is one of the most significant challenges facing society in the coming decades.

I will discuss some of the technical, economic, and social considerations defining this challenge and offer some thoughts on possible solutions and likely energy futures.

Fermilab, 1 West  
Kirk and Wilson Roads, Batavia, IL  
[www.fnal.gov](http://www.fnal.gov)

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

## Seguin Services Goes Solar

The Illinois Clean Energy Community Foundation has awarded a \$68,000 grant to Seguin Services of Cicero, Illinois to install 13 solar thermal systems on 12 group homes and a community car wash. These homes are located in the communities of Bellwood, Berwyn, Brookfield, Cicero, Hillside, LaGrange, North Riverside, Oak Park and River Forest.

Seguin is a non-profit agency who for 50 years has provided foster care and adoption services, residential services and community employment for children and adults with developmental disabilities.

Solar Service Inc. of Niles, Illinois will begin installation work this spring.

**SOURCE:**  
Sharon Stuertze, Solar Service Inc.  
[www.solarserviceinc.com](http://www.solarserviceinc.com)

## Illinois Wind Gives City Green Power Option

NAPERVILLE - Wind power marketing company Community Energy (CEI) doesn't limit its purchasing power to contracts with utilities and commercial businesses.

The city of Naperville, Illinois has entered into an agreement with CEI for a voluntary municipal program that allows all residential and commercial utility customers within the city the opportunity to purchase emission-free, renewable sources of electricity from wind, sun, and water.

"Municipally-owned utilities, like ours in Naperville, have the responsibility to take the lead in doing the right thing to help our environment," said Director of Public Utilities Allan Poole. "By supporting renewable energy in Illinois, we are displacing energy produced with fossil fuels and substituting it with energy generated from natural resources."

The renewable energy supplying the Naperville Renewable Energy Option program is comprised of 90 percent wind energy, 5 percent small-hydro, and 5 percent solar energy that is generated entirely within the State of Illinois. Crescent Ridge Wind Farm is one of the wind developments that will supply power for the city's program. Success for the municipal program should lead to more renewable energy being built in the state.

Solar power for the program will come from Chicago-based solar power projects, and the hydropower will be generated by a small, low-impact hydro-facility located on the Fox River in Illinois.

**SOURCE:**  
Renewable Energy Access  
<http://www.renewableenergyaccess.com/>

**Quote:** "I fear it will take expensive condominiums in Florida floating out to sea before Americans embrace the need to combat global warming."

Low Freedman, Chicago Tribune  
[www.chicagotribune.com](http://www.chicagotribune.com)

## Fourth Annual Historic Chicago Bungalow Expo Saturday, 4/30, 10am - 4pm

Designed as a one-stop shop for Bungalow owners and enthusiasts, the Expo offers owners and would-be owners everything they need to know about owning and restoring one of Chicago's 80,000 Historic Bungalows.

In addition to learning about financing and rehab, bungalow owners will also be able to certify their home within minutes to take advantage of the numerous grants and special financing available, such as the *Energy Efficiency Matching Grant (50% up to \$2000)* which includes solar water heating.

Free admission and parking.  
Illinois Institute of Technology (IIT),  
Hermann Union Building  
3241 S. Federal St., Chicago, IL

Historic Chicago Bungalow Initiative  
[www.chicagobungalow.org](http://www.chicagobungalow.org)

### IL DCEO Renewable Energy Solar Thermal Grant Program

The Illinois Department of Commerce and Economic Opportunity is pleased to announce the immediate availability of Solar Thermal Grant Application Guidelines under the Renewable Energy Resources Program. A copy of the Guidelines can be found:

[www.illinoisbiz.biz/com/energy/renewable.html](http://www.illinoisbiz.biz/com/energy/renewable.html)

Please contact Rex Buhrmester, Program Manager, at (217) 557-1925 if you have any questions.

## 2005 Board of Directors

The ISEA welcomes newly elected Mary Eileen O'Keefe, and returning directors Howard Alan, Jamie Cleveland and Jim Camasto to new two years terms on the board. They join: Mark Burger, Ted Lowe, Bill Lyons, and Jeff Teppema serving in the second year of their two year terms.

We wish departing director to Sharon Stuertze many, many thanks for her commitment to ISEA. Thanks also to Dick Claus, who verified vote tallies.

Ted Lowe,  
Election Official

## Volunteer with ISEA at the Chicagoland Home Expo Friday-Sunday, 4/22-24

Volunteer with the ISEA at our display booth (C179 in the Green Pavilion) at the Chicagoland Home Expo, in McCormick Place. (ISEA will cover part or all Expo admission fees for ISEA volunteers.)

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

*The Green Pavilion features:  
"A comprehensive display featuring environment-friendly building materials, energy efficient appliances and renewable energy systems will show you what's new in the world of sustainable living. Look for our Sustainable Home model suite with furniture and home design ideas.*

*This is a great opportunity to learn about green architecture, design and building techniques and how they can easily be incorporated into your home."*

Adults- \$10 (\$7 online)  
Children Under 15: Free

50% of ticket sales supports Habitat for Humanity to build homes in the Chicago metropolitan area,  
[www.chicagolandhomeexpo.com](http://www.chicagolandhomeexpo.com)

McCormick Place  
Lakeside Center, Hall D1  
[www.mccormickplace.com](http://www.mccormickplace.com)

## Bureau County Wind Energy Project Seeking Support

A group of central Illinois electric cooperatives is giving customers the opportunity to support wind energy development, including the Crescent Ridge project, through the purchase of renewable energy certificates.

In February, eight of 11 Continent Cooperative Services cooperatives

began including staffers in monthly statements that offer the certificates for \$6, \$9 or \$12 a month for 200, 400 or 600 kilowatt-hours.

"I think it shows an awareness of the environment. We just felt like it was time that we give it as an option for our customers. The whole wind-energy industry has improved, and the technology has improved dramatically," said Jon Miles, president and CEO of the McDonough Power Cooperative.

A purchase of the certificates is merely symbolic, because it is impossible on the electric grid to direct power produced by wind energy to an individual customer.

The certificate is merely a surcharge that goes to support Community Energy Inc., one of the primary owners of Illinois Wind Energy, which is developing Crescent Ridge in Bureau County and plans to build other wind farms in the state.

Purchasers receive a certificate showing their commitment and a window decal. "You know that there is independent verification that you did your part to ensure that these projects continue to be built," said David Stuva, president and CEO of the Rural Electric Convenience Cooperative, which serves a group of counties south of Springfield.

It is too early to gauge how much support customers have given to the project so far, Stuva added, but the certificates have generated a lot of inquiries.

In a survey sent out to coop customers, about 10 percent expressed interest in purchasing the certificates.

"Cooperatives have really begun to take a lead on the issue in the state in trying to promote it," Miles said.

Continent Cooperative Services provides power to portions of Peoria, Hancock, Henry, McDonough, Fulton, Knox and Peoria counties and others throughout central Illinois.

SOURCE:  
Brandon Coutre, Peoria Star Journal  
[www.pjstar.com](http://www.pjstar.com)

**"SEIA"**  
**(...continued from page 1)**

"Solar is the perfect technology to displace a portion of the natural gas demand and relieve some of the tightness in the natural gas markets. It can directly displace the need for peaking and intermediate gas plants, because solar power is greatest from 10-4 every day - the time that the grid experiences peak power demand."

In addition, Resch said, the industry could create 40,000 new U.S. solar industry jobs and more than \$34 billion in new manufacturing investments over the next 10 years. By 2030, the US solar industry could employ 260,000 people. To achieve these goals, SEIA called on Congress to enact sustained, annually declining tax credits for solar deployment.

The incentives would help lower retail solar electricity prices from the current rate of 18 - 25 cents per kilowatt-hour to 5.7 cents/kWh in 10 years, making solar the least-cost retail option.

Addressing Energy Subcommittee chairman Ralph Hall (TX-4th), Resch noted that the chairman's home state of Texas would be second among all 50 states to benefit from the industry proposal. "As the center of the energy industry, Texas is in the position to attract a significant portion of the new high-tech jobs in the solar industry," Resch said. "According to the Bureau of Labor Statistics, the oil and gas industry has downsized some 14,000 jobs in Texas over the last 10 years. Following our recommendations, the photovoltaic industry alone could create over 5,500 new jobs in Texas in the next decade."

There are currently more than 85 companies in the Texas solar industry. The state is home to roughly 770 companies with 88,000 employees that manufacture components similar to those used in solar manufacturing, such as sheet metal work, semiconductors, and plastic materials. Resch estimated that Texas would reap almost \$4.5 billion in new business investments in ten years under the proposal.

**SOURCE:**  
*Solar Energy Industries Association*  
[www.seia.org](http://www.seia.org)

**"Plan"**  
**(...continued from page 1)**

The Governor's Illinois Sustainable Energy Plan also calls for an Energy Efficiency Portfolio Standard that would lead to greater investment by electric utilities in programs that save energy. "Upgrading heating and cooling systems and replacing inefficient lights and appliances with less power hungry equipment will slow the growth of our energy use and help lower energy bills for businesses and families across Illinois," said Governor Blagojevich. "Investing in energy efficiency will not only save money but will help prevent blackouts by taking pressure off the grid."

Consumer advocates and environmental groups alike strongly support the Governor's plan. "The combination of investing in cost effective energy efficiency and renewable energy will payoff for consumers in the form of lower, more stable electricity rates," explained Martin Cohen, the Executive Director of the Citizen's Utility Board. "The Governor's plan brings Illinois into the forefront of a national movement toward a sustainable energy future that reduces our dependence on vanishing resources."

The Environmental Law and Policy Center, a long-time champion of renewable energy, calls Governor Blagojevich's Illinois Sustainable Energy Plan "a winner for Illinois." "This is a historic pro-environmental step that will create good new jobs and spur rural economic development in some of the places in Illinois that need it most," said Executive Director Howard Learner. "We look forward to working with the Illinois Commerce Commission toward its swift approval of the Governor's initiative so that Illinois can capture the environmental and economic benefits quickly."

If adopted, the Illinois Sustainable Energy Plan could generate more than \$2 billion in investments in Illinois, creating about 2,000 construction jobs and hundreds of permanent jobs.

Both of Illinois' two largest electric utilities – Commonwealth Edison and Ameren Corporation – have also endorsed the Governor's Sustainable

Energy Plan, noting that it is a sensible and responsible approach to ensure Illinois' energy future is bright. "Ameren is committed to working with the Governor and the Illinois Commerce Commission to achieve the Governor's vision of renewables in Illinois' energy future," said Ameren Senior Vice-President Steven Sullivan, who added that, "the Governor's goal would put Illinois on the cutting-edge of renewable energy when compared to other states."

"We are very supportive of Governor Blagojevich's environmental initiatives, including the use of renewable energy resources and energy efficiency technologies. Over the last five years ComEd has invested more than \$350 million to develop renewable energy resources, improve efficiency and preserve and restore natural areas. Renewable energy will be an important future energy source," said Frank Clark, Executive Vice President and Chief of Staff, Exelon, and President, ComEd.

The Illinois Sustainable Energy Plan is the culmination of years of dedicated work by environmental groups and Lt. Governor Pat Quinn, who chaired Governor Blagojevich's Special Task Force on the Condition and Future of the Illinois Energy Infrastructure. Taskforce recommendations issued last year included both renewable energy and energy efficiency as key strategies to bolster Illinois' energy infrastructure.

Given the broad support for this proposal, the Governor expects that the ICC will promptly take his recommendations under consideration and vote to adopt a final plan as soon as possible.

**SOURCE:**  
*Office of the Governor - Press Release*  
[www.commerce.state.il.us](http://www.commerce.state.il.us)



## Green Earth Fair Sunday, 5/, 1-4pm

*Featuring:* Natural Landscaping, Organic Home Gardening & Lawn Care, Composting, Vermiculture, Nutrition & School Food, Solar and Wind Energy, Backyard Wildlife Habitat Program, Local Prairie Remnants, Native Americans and Care for the Land, Open Space Preservation and River Protection, and others.

### For more information, contact:

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[info@illinoissolar.org](mailto:info@illinoissolar.org)  
(630) 260-0424

Green Earth Institute  
10 S 404 Knoch Knolls Rd.  
Naperville, IL  
[www.greenearthinstitute.org](http://www.greenearthinstitute.org)

## Coles-Moultrie Co-op Offering RE Certificates

MATTOON - Coles-Moultrie Electric Cooperative is offering renewable energy certificates for those interested in supporting renewable energy development in Illinois.

The energy certificates will be billed monthly and they cost \$6 a month for a 200 KWh block. For Coles-Moultrie members, the charge will appear on their monthly bill. The wind energy for the EcoEnergy program will be produced by the new Crescent Ridge Wind Farm near Princeton.

"You could buy the same kind of certificates from wind energy producers in California, but that doesn't do anything for the environment or the economic development benefits of wind energy right here in Illinois," Christman, president/CEO of Coles-Moultrie Electric Cooperative said.

Thirty-three giant turbines with 115-foot blades on 230-foot towers will produce 1.65 megawatts each at Crescent Ridge Wind Farm, located south of Princeton, said John Haley, director of Midwest Operations for Community Energy.

*SOURCE:*  
*Journal Gazette & Times-Courier*  
[www.jg-tc.com](http://www.jg-tc.com)

## Clean Energy ETF On Deck

An exchange-traded fund (ETF) based on an index of publicly-traded energy companies that focus on environmentally-friendly sources of energy and technologies is set to begin trading on the American Stock Exchange later this month.

The ETF, which will be managed by PowerShares Capital Management, will track the WilderHill Clean Energy Index, a benchmark calculated by the Amex that was launched in August. The Amex collaborated with index provider WilderShares, in developing the index.

The index contains 37 companies that use greener and renewable energy alternatives such as wind, solar, and hydrogen fuel cells. As of Jan. 27, the top companies in the index were Distributed Energy (DESC), Evergreen Solar (ESLR) and Zoltek Companies (ZOLT), according to the Amex.

In December the Wheaton, IL based firm rolled out a duo of ETFs tied to two of the market's hottest sectors: the PowerShares Golden Dragon Halter USX China Portfolio (PGJ) and the PowerShares High Yield Equity Dividend Achievers Portfolio (PEY).

In 2003 PowerShares introduced its first pair of ETFs that attempt to beat market indexes by incorporating elements of active management such as earnings and trading momentum.

*SOURCE:*  
*John Spence, Marketwatch*  
[www.marketwatch.com](http://www.marketwatch.com)

## BP Foundation Contributes to Million Solar Roofs Initiative

We are pleased to announce that the BP Foundation has sent the Illinois Solar Energy Association a \$5,000 donation that will go towards cost-sharing of the Million Solar Roofs Initiative Chicago Solar Partnership grant.

*Diana Mendoza & Doris Salomon*  
*BP Foundation*

## Solar Chicago for 25 Years

The City of Chicago purchased its first solar hot water heater in 1979. Solar Service Inc. (then known as Solar Energy Products, Inc.) installed a four panel, 200 gallon per day system on a brand new fire station, CF-16, located at 4900 W. Chicago Avenue.

In 1980, Mayor Jane Byrne along with Public Works Commissioner Jerome Butler, dedicated the new firehouse. The event received local and national press coverage. (*This photo, taken that day, features Mayor Byrne and Brandon Leavitt*).



After 25 years, I'm pleased the City is moving towards recognizing the value of installing solar thermal on more City fire houses. As one who authored the 2002 proposal suggesting the City utilize more solar on city buildings, I would welcome the opportunity to participate in future installations.

*SOURCE:*  
*Brandon Leavitt, Solar Service Inc.*  
[www.solarserviceinc.com](http://www.solarserviceinc.com)

## 2005 ISEA Board of Directors

**President** - Mark Burger, Spire Solar Chicago  
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Bill Lyons, Spire Solar Chicago  
Jim Camasto, A World of Improvement  
Mary Eileen O'Keefe  
Jeff Teppema

## Sun Catchers Tuned To Crank Out The Juice

PORTLAND, Ore. - Electrical Engineers (EE's) are turning a 19th-century invention into a 21st-century alternative-energy source.

The last leg of a two-decades-long effort by the U.S. Energy Department to unleash super efficient solar power by 2011 is homing in on the so-called Stirling engine, which is being used to drive solar generators.

DOE test site measurements suggest the setup could bring the cost of solar power on a par with traditional fossil fuels and hydroelectric sources — assuming the project engineers can balance the separate power feeds from farms of thousands of simultaneously online 25-kilowatt Stirling solar dishes.

The heart of the design, the engine itself, was invented by the Scottish minister Robert Stirling in 1816.

"The Stirling engine makes solar power so much more efficiently than photovoltaic solar cells can," said Robert Liden, chief administrative officer at Stirling Energy Systems Inc. (Phoenix). "That's because the Stirling solar dish directly converts solar heat into mechanical energy, which turns an ac electrical generator." The bottom line, he said, "is that large farms of Stirling solar dishes — say, 20,000-dish farms — could deliver cheap solar electricity that rivals what we pay for electricity today."

Under a multiyear Energy Department contract that started in 2004, Stirling Energy Systems will supply Sandia National Laboratories with solar dishes for integration into full-fledged power-generation substations capable of direct connections to the existing U.S. power grid. Right now about 20 EEs, including more than a dozen from Stirling Energy Systems, are working full time at Sandia to create the electrical-control systems to manage these sunshine stations.

By the end of 2005, they plan to have six dishes connected into a miniature power station capable of supplying enough 480-volt three-phase electricity to power about 40 homes (150 kW). The next step, in 2006, is a 40-dish power plant that will transform the combined

output of the farm from 480 to 13,000 V, for distribution of industrial-level power to an existing substation. From 2007 to 2010, the program proposes mass-producing dishes to create a 20,000-dish farm supplying 230,000 V of long-haul power from its own substation directly connected to the grid.

If the project succeeds, the DOE predicts that by 2011, Stirling solar-dish farms could be delivering electricity to the grid at costs comparable to traditional electricity sources, thereby reducing the U.S. need for foreign sources of fossil fuels.

Eventually, according to DOE estimates, an 11-square-mile farm of Stirling solar dishes could generate as much electricity as the Hoover Dam, and a 100 x 100-mile farm could supply all the daytime needs for electricity in the United States.

By storing the energy in hydrogen fuel cells during the day, Stirling solar-dish farms could supply U.S. electrical-energy needs at night too, as well as enough juice for future fuel-cell-powered automobiles, the DOE believes.

Power today costs from about 3 cents to 12 cents per kilowatt-hour, depending upon the customer's location and the time of day. The average is 6.6 cents/kW-hr for the industrial sector in 2004, according to DOE. In contrast, the Stirling solar-powered substations operate only during peak hours (daytime) but at potentially the same or less than the peak rates paid today — or "about 6.5 cents per kilowatt-hour during peak periods," said Liden of Stirling Energy Systems.

Prior DOE tests settled on the Stirling solar dishes by comparing traditional solar power with three kinds of "focused thermal" solar energy — all of which operate in a manner similar to the solar-power generator in the James Bond movie *The Man with a Golden Gun*. There, Roger Moore narrowly escapes being fried by the concentrated beam from a focused solar mirror that uses the same principle whereby leaves are set on fire with the focused sunlight from a magnifying glass.

The DOE compared the Stirling solar dish, parabolic troughs, power towers and concentrated photovoltaics. The study, conducted at Sandia National Laboratories' Solar Thermal Test Facility, concluded that Stirling dishes outperformed all other sources of solar power.

Today Stirling-powered solar dishes at the Sandia test facility operate at 30 percent efficiency while delivering grid-ready alternating current. In contrast, 30-percent-efficient solar cells are direct current and drop to 16 percent efficiency by the time they generate grid-ready ac. And that's on a hot day. Efficiency can drop as low as 10 percent on a cool day.

"Tests have already shown that the Stirling engine can be made into a very efficient power generator," said Chuck Andraka, project leader at Sandia's Solar Technology Department. "Now what we need to show is that many small units can be coordinated in farms that together rival traditional power sources."

Time for a change.

Historically, the Stirling engine could never compete with the bigger bang per cubic inch of a gas-guzzling internal-combustion engine. However, dependence on foreign oil, increasing pollution and America's seemingly unquenchable thirst for more energy hint that it might be time for a turnaround.

SOURCE:

R. Colin Johnson, *EE Times*  
[www.eetimes.com](http://www.eetimes.com)

**Heliographs** is published quarterly by the Illinois Solar Energy Association (ISEA). Editor: James Camasto. Special thanks to Philips Lighting for their generous donation of printing services.

Membership information, updated information, and assistance in locating other resources can be obtained on the ISEA website: [www.illinoissolar.org](http://www.illinoissolar.org)

Comments & questions directed to:

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<p><b>Illinois Clean Energy Community Foundation</b> Ed Miller, Program Director 2 North LaSalle Street Chicago, IL 60602 Fax: 312-372-5191/5190 Web: <a href="http://www.illinoiscleanenergy.org">www.illinoiscleanenergy.org</a></p>	<p><b>Illinois Dept. of Commerce and Economic Affairs</b> Rex Buhrmester, Program Manager 620 E. Adams St. Springfield, IL 62701 Phone: 217-557-1925 Fax: 217-785-2618 Web: <a href="http://www.illinoisbiz.biz/com/energy/renewable.html">www.illinoisbiz.biz/com/energy/renewable.html</a></p>	<p><b>Illinois Solar Products, Inc.</b> Ernie Nathan 1920 Northland Ave Highland Park, IL 60035 Phone: 847-612-2789 Email: <a href="mailto:ernie@illinoisolarproducts.com">ernie@illinoisolarproducts.com</a> Web: <a href="http://www.illinoisolarproducts.com">www.illinoisolarproducts.com</a></p>

# ISEA BUSINESS MEMBERS

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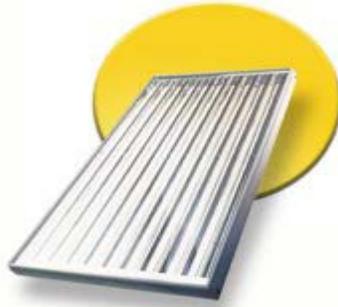
# ISEA CHARTER BUSINESS MEMBER SOLARGENIX

## WINSTON SERIES COLLECTOR SELECTED TOP-10 PRODUCT FOR 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.*

SOURCE:  
BuildingGreen  
[www.BuildingGreen.com](http://www.BuildingGreen.com)  
800-861-0954

**JOIN US** in the common goal of promoting solar/renewable technologies, providing energy education and establishing a sustainable energy network. Your support today can help provide a cleaner environment tomorrow.

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## UPCOMING EVENTS

<b>April 2<sup>nd</sup></b> <i>Saturday, 10am-12pm</i>	ISEA Spring Membership Meeting Phil and Kathi Elwood, Oak Park	<i>Page 2</i>
<b>April 13<sup>th</sup></b> <i>Wednesday, 4-5pm</i>	Physicist's View: World's Energy Situation Fermilab Colloquium, Batavia	<i>Page 3</i>
<b>April 22-24</b> <i>Fri &amp; Sat, 10am-9pm</i> <i>Sun, 11am-5pm</i>	Chicagoland Home Expo - Green Pavilion McCormick Place, Chicago	<i>Page 4</i>
<b>April 30<sup>th</sup></b> <i>Saturday, 10am-4pm</i>	4th Annual Chicago Bungalow Expo Illinois Institute of Technology, Chicago	<i>Page 4</i>
<b>May 1<sup>st</sup></b> <i>Sunday, 1-4pm</i>	Green Earth Fair Green Earth Institute, Naperville	<i>Page 6</i>

**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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