

## EERE Program News

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### May, 2008

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*Second Life*, an online, virtual universe started in 2003, now has over 13 million registered participants including international banks, major corporations, businesses and individuals. The Solar Decathlon has carved out a spot in this virtual reality that is getting plenty of attention — in the real world.

(illustration courtesy: *Second Life* and JimmyJet Fossett)

To quote [CNet News.Com](#), "It's about time green architects invaded *Second Life*."

*Second Life* is one of the hottest "virtual realities" yet devised, visited by millions of participants around the globe. And now, the [Solar Decathlon](#) has an online presence in this virtual world that's gathering a good deal of attention.

In [News](#), we explore topics such as how industrial assessments can bring big energy savings, and how Indiana, once thought of as having few wind resources, is proving skeptics wrong.

Elsewhere, the price of petroleum has shot up about 34 percent since the first of the year and that is bad news when you fill your gas tank, but good news when wanting to move more renewable energy and energy efficiency products into the marketplace.

As petroleum prices rise, more people are recognizing renewables and energy efficiency as serious, long-term competitors in replacing fossil fuels.

One bit of good news is that the U.S. investment in biofuels is beginning to pay off. The London Financial Times reported this month (based on DOE Energy Information Agency numbers) that "The U.S. decline in foreign oil dependency is already becoming more visible, with imports making up 57.9 percent in the first three months of this year, down from 58.2 percent last year."

Here at home, solar energy continues to come into its own as an economically viable competitor in replacing conventionally-generated electricity. From utility-scale concentrating solar power plants ([VIDEO](#)) to residential rooftop hot water heaters, interest in solar energy has never been greater. This is particularly true in localities being assisted by the [Solar America](#) and [Solar America Cities](#) programs. This month's [Features](#) explores some of the many new solar projects now coming online.

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### News

#### **DOE energy assessment helps Goodyear save \$875,000**

When the Goodyear tire plant in Union City, Tenn., participated in a DOE [Save Energy Now](#) energy assessment, [Energy Expert](#) Don Schmidt used DOE's [Steam System Assessment Tool \(SSAT\)](#) to identify and recommend two energy savings opportunities that would cost the plant \$180,000.

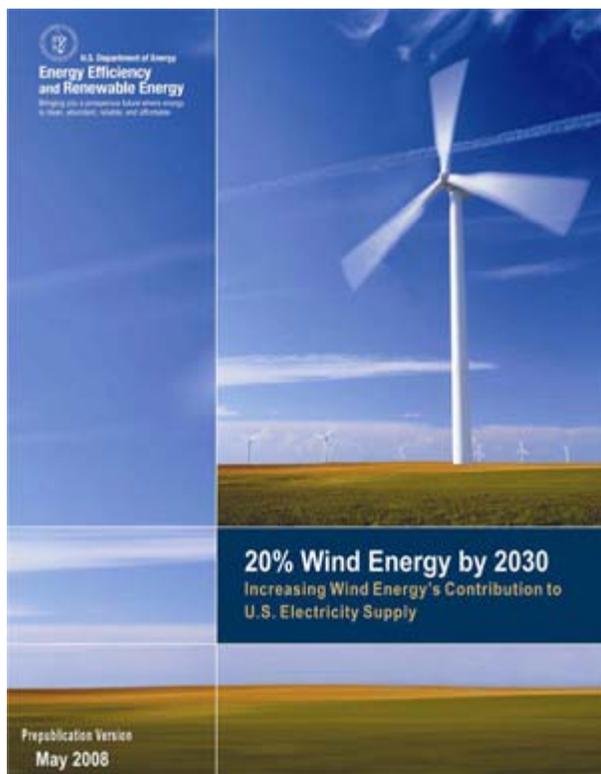
Goodyear followed the recommendation, spent the money and in one year saved \$875,000 in energy costs, while also reducing natural gas use by 93,000 MBtu.

The company's energy saving investment paid for itself in less than three months.

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#### **How to reach 20 percent wind power by 2030**



DOE's new report on wind energy expansion lays out what it will take for the U.S. to reach the potential of getting 20 percent of our electricity from wind power by 2030.

After a decade of trailing Germany and Spain, the U.S. re-established itself as the world leader in wind energy in 2005. Many believe this may be a case of "just in time."

U.S. electricity demand is estimated to grow by 39 percent from 2005 to 2030, reaching an annual demand of 5.8 billion megawatt-hours (MWh) of electricity.

To meet 20 percent of that demand, the nation needs to build a wind energy capacity of at least 300 gigawatts (GW) — right now, U.S. wind capacity stands at about 11.6 GW.

A 20 percent wind energy scenario in 2030 will require:

- Stable financial incentives;
- Improved turbine technology;
- More turbine sites over broad area;
- Significant transmission expansion;
- Expanded power marketplace.

These and other challenges are pointed out in a new DOE report: [20% Wind Energy by 2030: Increasing Wind Energy's Contribution to U.S. Electricity Supply \(PDF 3.95 MB\)](#).

[Download Adobe](#)

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## **DOE Solar Showcase funding opportunity now open**

Under its Solar Showcase program, DOE will provide technical assistance to large-scale, high-visibility solar installation projects having the ability to impact the market for solar technologies.

Large project size, use of a novel solar technology, and/or use of a novel application for a solar technology will be considered as positive attributes for successful proposals. It is also desired that any project submitted for consideration be replicable or have replicable components.

Large-scale installations to be considered may include photovoltaic, concentrating solar power, solar water heating, and solar space heating applications. Application closing date is June 12.

[Notice of Opportunity for Financial Assistance for Solar Showcase Projects](#)

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## Indiana brings first commercial wind farm online

Indiana, once thought to be lacking wind power potential, has just brought its first commercial wind farm online. According to the [Chicago Tribune](#), the 130-megawatt Benton County Wind Farm went online this month about 90 miles northwest of Indianapolis near the Illinois state line. It can generate enough electricity to power about 43,000 homes.

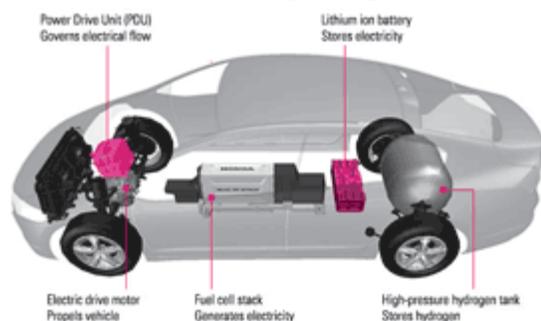
The \$250 million project is the first of six Indiana wind farms in the works that will generate a combined 3,000 megawatts, and several other projects are in the planning stage.

Wind mapping research supported by DOE and the National Renewable Energy Laboratory first helped bring Indiana's wind potential to light.

"We're zooming from nothing to 3,000 megawatts in just a few years, but they're just scratching the surface of the state's potential," said Eric Burch, a spokesman for the Indiana Office of Energy and Defense Development.

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## Honda's advanced hydrogen car ready to hit the streets



Honda's latest generation hydrogen powered car has a 270 mile range on a tank of fuel, and from the exterior is indistinguishable from a gasoline-powered vehicle.

(Illustration courtesy of Honda)

Honda will make a new hydrogen-powered car, the FCX Clarity, available in the U.S. later this summer. In a significant move toward practicality, the company's engineers have radically reduced the sizes of the car's fuel cell and motor, leaving the same interior space as a regular car. The Clarity reaches maximum speed of 99 miles per hour, comfortably seats four people and will lease in California for around \$600 a month. Driving range on a tank of fuel is about 270 miles.

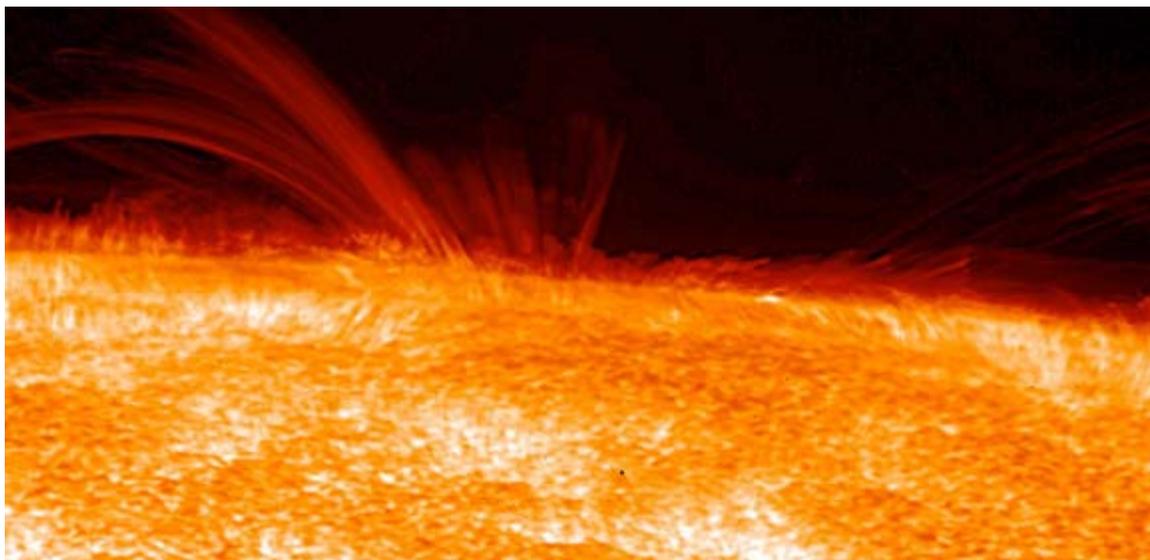
The big improvement over previous models came from a design breakthrough in the fuel cell stack. The car's fuel cell stack weighs 148 pounds, about 30 percent lighter than the previous model at 212 pounds. Honda says the car will easily start and operate in sub-zero temperatures, as well as in milder climates. Another innovation is the vehicle's lithium-ion battery, now commonly used in laptops and other gadgets, but a still a rarity in automobiles.

Along with the FCX Clarity, Honda has operated an experimental Home Energy Station in Torrance, Calif., since 2003. The Home Energy Station, which generates hydrogen from natural gas, is designed to provide heat and electricity for the home through fuel cell cogeneration and to supply fuel for a hydrogen-powered fuel cell vehicle.

[Web Site](#) and [\(VIDEOS\)](#) of car and interviews with Sachito Fujimoto, a head Honda engineer who oversaw the new fuel cell's development.

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**Features**



Taken by Hinodes Solar Optical Telescope on Nov. 11, 2006, this image reveals the fine scale structure in the sun's chromosphere. The structure results from the interaction of hot ionized gas with the magnetic field.

(photo courtesy of: Hinode JAXA/NASA)

### **Here comes the sun — solar business booms**

Whether it is [Arizona's planned 280-megawatt, concentrating solar power plant](#), or Colorado's [NexGen solar homes](#), solar energy continues to move into the mainstream.

As utilities, businesses and home builders become more interested in solar energy, DOE's [Solar America Initiative](#) also helps accelerate development of advanced photovoltaic (PV) materials, with the goal of making PV cost-competitive with other forms of electricity by 2015.

Business, industry and local governments are finding creative ways to finance solar projects. In addition to financial incentives such as [rebates and tax credits](#), business and government organizations are taking advantage of Power Purchase Agreements to eliminate the high up-front costs of solar installations.

As one solar installer explained it, "Essentially a Power Purchase Agreement says that I agree to let you install and operate a solar power generating system on my rooftop or property; I, in turn, agree to purchase the generated power for an agreed-upon rate for a set, extended period of time. I have no up-front cost and you have a guaranteed customer for the power your system generates."

Macy's, for example, has agreed through a 28-store partnership with [SunPower](#) to install a total of 8.9 megawatts (MW) of solar power systems on its California stores. For 17 of the 28 stores, [Macy's will purchase solar-generated electricity](#) under the SunPower Access Program.

Another program administered by DOE is the [Solar America Cities](#) program, which recently designated 12 more cities as "Solar America Cities," bringing the total to 25. The goal is to help municipalities identify opportunities as well as potential barriers to solar development, then work together to make it easier for people to "go solar" if they choose.

Additionally, the [Utility Solar Water Heating Initiative \(USH2O\)](#) is an active coalition of utilities and the solar thermal industry helping implement cost-effective, reliable solar solutions for utilities and their customers. The coalition advocates the application of solar water heating for meeting requirements of renewable portfolio standards and green pricing programs.

The following is a compendium of what's happening within and surrounding these DOE programs.

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### **Take me out to the (solar) ball game**



Boston's Fenway Park has recently installed 28 solar panels that will generate over a million BTUs to heat one-third of the stadium's hot water needs.

(Photo courtesy: [Environment News Service](#))

Now, when a ball player gets sent to the showers at [Boston's Fenway Park](#), he will be washing away his troubles with water heated by the sun. Earlier this month the Boston Red Sox installed 28 solar panels that will generate about 1.1 million British Thermal Units (BTUs), or one-third of the ballpark's hot water load. [DOE Secretary Bodman](#) announced the solar investment at a media event last month and the panels became operational the middle of this month.

From Fenway Park to [Santa Rosa Hospital Northwest in San Antonio, Texas](#), to the California [City of Berkeley's Shorebird Park Nature Center](#), businesses, industries and utilities are rapidly proving that solar heating can be an affordable and cost-effective alternative for heating or cooling either water or space.

Solar heating harnesses the power of the sun to provide solar thermal energy for [solar hot water](#), [solar space heating](#), and [solar pool heaters](#). A solar heating system saves energy, reduces utility costs, and produces clean energy.

The efficiency and reliability of solar heating systems have increased dramatically, making them attractive options in the home or business. To help things further, the U.S. Energy Policy Act implemented a 30-percent tax credit for consumers who install solar water heating systems.

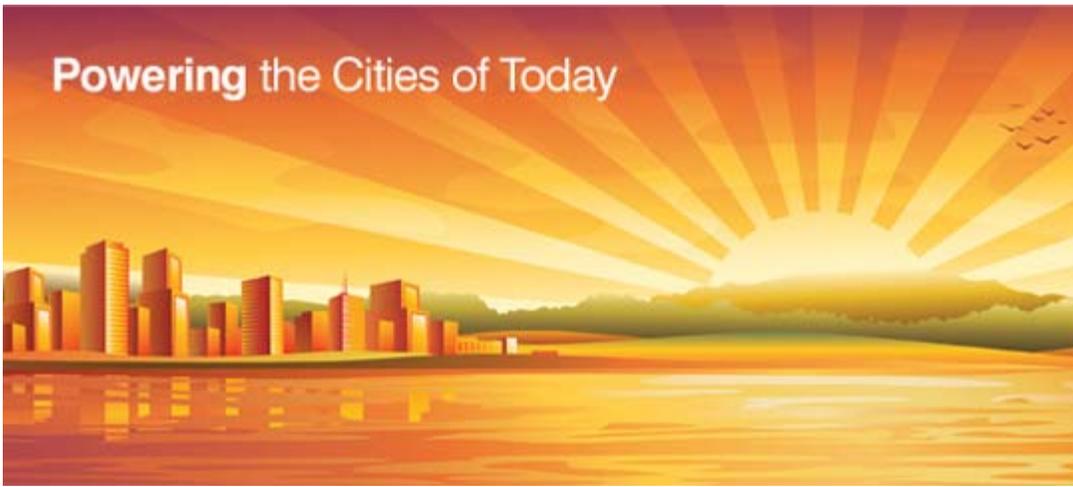
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## **The amazing scope of Solar America Cities**

**Question:** What do the following have in common?

- 540-kilowatt photovoltaic (PV) system at Cal-Expo in Sacramento, Calif.;
- Rooftop one-megawatt (MW) PV system planned for the Orange County Convention Center in Orlando, Fla.;
- First-of-its-kind, thin-film PV panels combined with clear glass panels on Coney Island's Stillwell Avenue Terminal in New York City;
- Solar hot water system installed on Ann Arbor, Mich.'s Fire Department Headquarters.

**Answer:** All are located in a Solar America City.



As partners in [DOE's Solar America Cities](#), a select group of U.S. cities have pledged to accelerate the adoption of solar energy technologies. Thirteen Solar Cities were announced in 2007, and 12 more joined the program just last month.

The Solar America City partnerships include DOE, its national laboratories, [25 cities across the U. S.](#), and a variety of municipal, county, and state agencies, universities, solar companies, utilities, developers, and non-profit organizations.

The partnerships are committed to work toward powering their municipalities with solar energy, and they share common goals:

- Produce power from secure, domestic energy;
- Build sustainable, "green" urban development;
- Help meet greenhouse gas reduction targets and climate change goals;
- Develop new economic opportunities based on solar industries.

The first step is to develop a sustainable solar infrastructure that removes barriers and encourages the adoption of solar energy. The second is to actually increase the number of solar installations within the cities.

[DOE to provide \\$2.4 million to advance solar energy to 2008's 12 new Solar America Cities.](#)

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### Here come the Solar Tiger Teams



Sandia's Tiger Team members relaxing for a group shot at the 1st annual Solar America Cities meeting in Tucson are (standing, left to right) Jeannette Moore, Andrew Kazensky, Howard Passell, Vipin Gupta, Greg Kolb, and Jack Mizner. Kneeling is Warren Cox. Present but not in the photo were Sandra Begay-Campbell, Beth Richards, and Charlie Hanley. Dick Fate, another team member, was occupied elsewhere.

(Photo courtesy: Sandia National Laboratories)

When DOE launched Solar America Cities, an integral part was the formation of "Solar Tiger Teams" to lend technical assistance to participating cities, helping them sort their way through the various solar development options and barriers they encountered.

The term, Tiger Teams, originated in the military and was later used in engineering and manufacturing, referring to a team set up solely in response to a specific situation or problem.

"Our Solar Tiger Teams are assemblages of experts put together for a particular purpose, to help cities take a fresh look at how they might best implement solar development," says Sandia Tiger Team group leader Vipin Gupta. They disband once the mission is completed, only to reassemble elsewhere.

The makeup of any particular Solar Tiger Team depends on the needs of each city and the opportunities to be explored. Team members are drawn from Sandia National Laboratories, the National Renewable Energy Laboratory (NREL), the Florida Solar Energy Center, CH2M Hill and New Mexico State University.

In San Diego, Calif., a Solar Tiger Team operated by NREL has helped the city analyze the performance of two large city-owned PV systems.

In New Orleans, a Solar Tiger Team has helped the city present a solar primer at the Home and Garden Show, an event attended by 70,000 people. The team has also helped New Orleans start breaking down barriers to solar installations by providing a training session for code officials, city officials and the local utility.

A Solar Tiger Team has also helped the City of Ann Arbor, Mich. determine whether third-party ownership of a proposed PV installation would result in more PV deployment than if the City owned the project.

"We are finding that a few categories of assistance tend to repeatedly surface," Gupta explained. They are:

- Identifying and overcoming regulatory barriers;
- Performing site surveys of public buildings for solar potential;
- Mapping rooftop potential for solar; determining what's practical;
- Finding and suggesting innovative financing options;
- Determining what type of solar technology to adopt;
- Reviewing building, electric, and plumbing codes to clear the way for solar applications.

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## How does solar heating really work

While photovoltaics get most of the media attention and glamor, more people are beginning to learn that solar heating is another great option for harnessing the power of the sun to help cut back on utility bills for [hot water](#), [space heating](#) and [pool heaters](#).

EERE's Solar Energy Technologies Web Sites have good information on:

- [Different solar heating systems](#)
- [Solar heating in use](#)
- [How DOE supports solar heating research](#)
- [Solar water heaters and solar pool heaters](#)
- [Industrial solar heating technologies](#)

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## EERE News Releases

May 6, 2008

[DOE Awards \\$126.6 Million for Two More Large-Scale Carbon Sequestration Projects](#)

May 5, 2008

[DOE Announces Up to \\$7.5 Million in Advanced Technology Research to Harness Energy Potential of Oceans, Tides and Rivers](#)

May 2, 2008

[U.S. Department of Energy Partners with City of Greensburg, Kansas to Help Rebuild With 100 Percent Renewable Energy](#)

April 30, 2008

[DOE Seeks to Invest up to \\$60 Million for Advanced Concentrating Solar Power Technologies](#)

April 22, 2008

[U.S. Department of Energy Launches Website with Energy Saving Tips for Consumers](#)

April 22, 2008

[Departments of Energy and Defense Launch ENERGY STAR® Operation Change Out – the Military Challenge Campaign to Promote the Use of Energy Efficient Light Bulbs](#)

April 21, 2008

[DOE Selects Projects for up to \\$50 Million of Federal Funding to Modernize the Nation's Electricity Grid](#)

April 18, 2008

[DOE Selects 3 Small-Scale Biorefinery Projects for up to \\$86 Million of Federal Funding in Maine, Tennessee and Kentucky](#)

April 17, 2008

[DOE Announces up to \\$7 Million for Biomass Research](#)

April 14, 2008

[DOE Offers Up to \\$4 Million to U.S. Universities for Biofuels Research](#)

April 11, 2008

[Secretary Celebrates Boston as a Solar America City](#)

April 11, 2008

[DOE Announces Plans for Future Loan Guarantee Solicitations](#)

April 7, 2008

[DOE to Invest up to \\$5.2 million to Advance Basic Research through Federal-State Partnerships](#)

April 2, 2008

[DOE and EPA Honor Energy Star Partners](#)

April 1, 2008

[DOE Announces New Energy Star Criteria for Water Heaters](#)

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## **Recent Speeches**

April 22, 2008

[Remarks by Secretary of Energy Samuel L. Bodman to ENERGY STAR® Operation Change Out – The Military Challenge Campaign Launch](#)

"The men and women of Camp Lejeune are certainly leading the effort [in Operation Change Out.] You have now changed out 17,500 light bulbs. ...Over the lifetime of these bulbs, nearly five million kilowatt hours (kWh) and over a half million dollars will be saved. ...Changing just one light bulb in every on-base housing unit in the U.S. would save over 62 million kWh over the life of the bulbs, representing enough energy... to light about 32,000 homes for a year. It would also prevent emissions of more than 95 million pounds of carbon dioxide... that's like taking 1,500 cars off the road."

April 18, 2008

[Remarks by Secretary of Energy Samuel L. Bodman to Biomass 2008: Fueling Our Future Conference](#)

"Our national energy policy centers around one key idea: we must diversify our energy sources, our energy suppliers, and our energy supply routes. This has absolutely been the case when it comes to biofuels. ...As we

pursue diversity in our overall energy mix we must also pursue diversity in our biofuels. This means moving away gradually from ethanol produced from food stocks like corn. ...But let me make it clear: I am not minimizing the importance of ethanol made from corn -- it is critical to our energy security.... ...But we [also] need to develop and deploy the next generation of biofuels — fuels made from biomass products that are outside the food chain...."

April 9, 2008

[Remarks by Secretary of Energy Samuel. L. Bodman to the Solar Boston Program Press Event](#)

"Solar [energy] is a key component of our national energy strategy. Our goal is make solar photovoltaic-based electricity cost competitive nationwide by 2015 — and sooner in some states. We're pursuing a two-pronged approach to make this happen. First, we're funding aggressive and innovative R&D programs. At the same time, we're working to integrate new technologies into the marketplace — and into the grid — efficiently and quickly. One way we are doing that is through the Solar America Cities program..."

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## Events

*If you have an event scheduled in the next year of regional or national interest to the energy efficiency and renewable energy communities, please contact us with pertinent information and a web link and we will include it in EERE Program News. — [Jack Jenkins](#), [John Horst](#), [Mariel Sala](#)*

[CSI Cleantech 2008](#) — June 1-5, Boston, Mass.

Event is a multi-disciplinary and multi-sector conference on global sustainability addressing advancements in traditional technologies, emerging technologies and clean business practices.

[NCGA Corn Utilization and Technology Conference](#) June 2-4, 2008, Kansas City, Mo.

Theme stresses the continued importance of corn as a keystone to a carbohydrate-based economy, covers wet milling, dry grind technologies and new uses for distillers dry grains.

[Energy Out West](#) — June 2-6, Scottsdale, Ariz.

Regional weatherization conference with a strong technical approach with expanded tracks for program managers and administrative staff.

[Bioenergy 2008](#) — June 3-5, Prince George, BC, Canada

Conference features dialogue on new technologies and processes that will bring about a global change in the way we perceive and use energy.

[CONSTRUCT 2008](#) — June 3-6, Las Vegas, Nev.

Commercial, industrial, and institutional construction professionals and hundreds of exhibiting companies will attend CONSTRUCT 2008. Nearly 100 training sessions will be held on the latest construction technologies, industry solutions, trends and best practices.

[DOE's EERE Hydrogen Program 2008 Merit Review](#) — June 9-13, Arlington, Va.

Each year hydrogen and fuel cell projects funded by DOE's Hydrogen Program are reviewed for their merit during an Annual Merit Review and Peer Evaluation Meeting.

[Utility Energy Services Contracts Workshop](#) — June 11-12, Washington, D.C.

This workshop is designed to provide essential information about using utility energy service contracts to implement energy projects at federal facilities.

[2008 International Fuel Ethanol Workshop & Expo](#) — June 16-19, Nashville, Tenn.

Workshop will focus on development of commercial scale ethanol and biodiesel production, targeting regional challenges and opportunities.

[Renewable Energy Finance Forum - Wall Street](#) — June 18-19, New York N.Y.,

Over 700 financiers, developers and investors gather at this meeting dedicated to financing renewable energy projects and companies.

[Interagency Sustainability Working Group Meeting](#) — June 17, Washington, D.C.

This working group helps advance the adoption of sustainable design principles in the federal sector in new and existing buildings.

[Biofuels 2010](#) — June 23-24, Houston Texas

Latest innovations, developments and regulations affecting biofuel production and use.

[Natl. Assoc. of Counties Annual Conference & Trade Show](#) — July 11-15, Kansas City, Mo.

National meeting to explore major concerns facing counties, including energy and transportation issues.

[Advanced ESPC/Financing](#) — July 15-17, Seattle, Wash.

Learn how to implement your energy conservation project through Super Energy Savings Performance Contracting (Super ESPC). Intended for those who want to gain an in-depth understanding of the Super ESPC process and are currently developing a Super ESPC delivery order.

[Procurement Working Group Meeting](#) — July 17, Washington, D.C.

This working group works to assist federal agencies in meeting federal procurement requirements for the purchase of energy-efficient products.

[NCSL Legislative Summit](#) — July 22-26, New Orleans, La.

National Conference of State Legislatures meeting will explore, through 180 issue forums, the major concerns now facing state legislatures.

[GovEnergy](#)— Aug. 3-6, Phoenix, Ariz.

Annual federal energy training, workshops, and trade show.

[Diesel Energy Efficiency and Emissions Research Conference](#) — Aug. 4-7, Dearborn, Mich.

DOE's primary mechanism for the public exchange of state-of-the-art advanced combustion engine research and development.

[American Coalition for Ethanol 21st Ethanol Conference](#) — Aug. 12-14, Omaha, Neb.

Well attended conference and trade show focusing on ethanol, highlighting the best in public policy, technology and education.

[Short Rotation Crops International Conference](#) — Aug. 18-22, Bloomington, Minn.

Conference will initiate and provide opportunities for scientific exchange of producing both agricultural and forest crops for biofuels, bioenergy and bioproducts.

[National Association of State Energy Officials](#)— Sept. 7-10, Overland, Kansas

Meeting will provide opportunity for state, federal and regional energy officials and stakeholders to discuss energy related topics.

[Laboratories for the 21st Century Annual Conference](#) — Sept. 16-18, San Jose, Calif.

The Labs21 Conference is a premier laboratory sustainability conference.

[31st World Energy Engineering Congress](#) — Oct. 1-3, Washington, D.C.

National event in which you can fully assess the "big picture" – and see exactly how economic and market forces, new technologies, regulatory developments and industry trends shape our energy and economic future.

[Solar Power 2008](#)— Oct. 13-16, San Diego, Calif.

The largest Solar Power Conference in the United States about the U.S. solar industry and market opportunities. The conference is sponsored by the Solar Energy Industries Association (SEIA) and the Solar Electric Power Association (SEPA).

[Wind Expo Latin American Wind Energy Association 2008](#) — Nov. 5-7, Guadalajara, Mexico

The first Latin American Wind Energy Association (LAWEA) Wind and Renewable Energy Conference and Exhibition, WIND EXPO LAWEA GUADALAJARA 2008, organized by the Latin American Wind Energy Association.

[2008 Congress of Cities & Exposition](#) Nov. 11-15, Orlando, Fla.

The National League of Cities' Annual Congress of Cities and Exposition is the Municipal Government Marketplace for administrators, city managers, council members, department directors and mayors. Suppliers showcase the products and services cities require to meet critical needs.

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