



The business, programs and policies of moving new energy products into the marketplace

EERE Program News, web version

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June 2010

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Associate Editor: [Eric Escudero](#)

Concentrating solar power development is a story we follow in the [News](#) section this month, along with global projections for renewable energy growth and a recap of major issues discussed at the 2010 American Wind Energy Association's national conference.

The American Solar Challenge car race is also in the spotlight this month.

Our [Features](#) section highlights developments in the biomass industry, including Sweden's announcement that wood pulp and logs are the country's primary energy sources instead of oil-based products. Also, we feature a biomass funding opportunity to spur research and development and introduce a new U.S. and Chinese venture to promote the use of biofuels on Chinese aircraft.



The Infinium is the University of Michigan's entry in the [American Solar Challenge](#), a 1,100-mile race from Tulsa, Okla., to Naperville, Ill., that began June 20. Teams promote solar energy development by designing and racing a car powered by solar cells.

Photo courtesy of: U-M Photo Services

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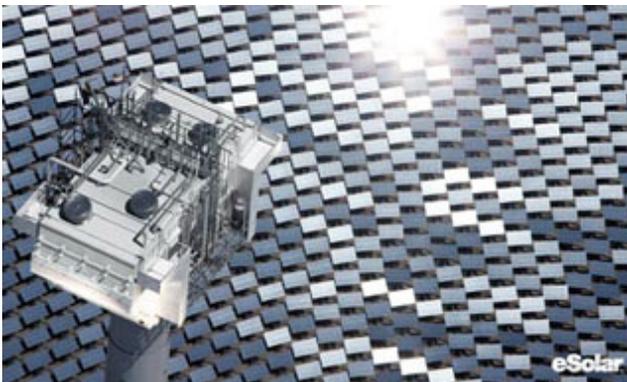
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Concentrating solar on fast track to lower equipment costs

[Concentrating solar power](#) is getting a burst of new energy with up to \$62 million in [DOE grants](#) awarded last month. These technologies aim to bring the cost of solar generation down and to store the heat generated to produce electricity even when the sun isn't shining.



From the top of the tower, the solar mirrors at eSolar's 5 MW SunTower facility look like a mosaic of tiles.

Photo courtesy of: eSolar

Of 13 companies getting awards, eSolar of Pasadena, Calif., received \$10.8 million to build advanced components for its [solar plants](#) (PDF 2.34 MB) that rely on an array of solar mirrors—called heliostats—to track the sun's direction daily and seasonally.

While its first commercially-operating, 5 megawatt (MW) [Sierra SunTower facility](#) (PDF 634 KB) uses two central towers to reflect sunlight onto a thermal receiver, the company seeks to build solar plants with multiple modular towers—each with its own thermal receiver—to turn this reflected sunlight into steam for electrical generation or to store the heat for later use. The system relies on software to tilt

the solar mirrors to capture sunlight, which is then used in each receiver to heat a molten salt mixture that creates steam to power a turbine and generate electricity.

Bill Gross, eSolar's founder and chairman, hopes these technologies will further reduce solar energy costs ([video](#)). Already the company has saved money at its SunTower facility by using robots to mass

manufacture the small mirrors and by locating them above ground on private land near transmission lines. eSolar's [current U.S. projects](#) are capable of producing up to 500 MW of power and it has plans to build up to 3,000 MW in China and India.

"We are ushering in the second industrial revolution as we finally begin powering the planet cost effectively from the sun," Gross said during SunTower's dedication in August 2009.

Another [solar power tower project](#) getting a boost of energy is Abengoa Solar, whose U.S. headquarters office is in Lakewood, Colo. The company is using \$10.6 million in DOE funds to also design a solar mirror system, high temperature thermal receiver and power tower that will turn the sunlight into steam to generate electricity. The system is also being designed for energy storage. Abengoa developed the world's first [commercial solar](#) power tower (PS-10) in Sevilla, Spain, which is generating 11 MW and can store the heat for 30 minutes after the sun goes down.



At eSolar's concentrating solar power plant in southern California, rows of heliostats reflect sunlight and direct it to a thermal receiver atop a tower, which then turns the heat into steam to run a turbine and electrical generator.

Photo courtesy of: eSolar

An advanced thermal storage system is also a key part of Pratt & Whitney Rocketdyne's solar power system design. The Canoga Park, Calif.-based company is using \$10.2 million in DOE funds to design and test new materials for a central power tower receiver, to develop a second-generation heliostat system and incorporate a new thermal storage system.

Financial opportunities continue to advance concentrating solar projects. Check out DOE's [Solar Energy Technologies Program](#) site for current or [upcoming](#) funding opportunities.

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'Landing' good sites will make or break concentrating solar

While sunlight is plentiful, the land for concentrating solar power and photovoltaic projects is not quite as available. Concerns about environmental impacts and the proximity of transmission lines limit the number of utility-scale solar plant locations—those capable of generating and interconnecting 10 megawatts (MW) or more to the grid. It's a challenge that DOE and the Bureau of Land Management (BLM) staff are addressing as they evaluate 24 potential sites under a Programmatic Environmental Impact Statement ([PEIS](#)).

DOE and BLM staff are evaluating optimal [sites](#) on 119 million acres of BLM-owned land in [California](#), [Arizona](#), [New Mexico](#), [Nevada](#), [Colorado](#) and [Utah](#) for both concentrating solar and photovoltaic technologies. They are also examining which sites should be excluded because of environmental impacts and concerns over whether or not new electricity transmission corridors should be designated to facilitate solar project development.

Those that are being evaluated are large tracts of land with [good solar resources](#). DOE has also identified the most economically suitable lands in the Southwest to deploy these concentrating solar power plants. (See direct-normal solar radiation maps in the [Southwest](#).) The draft PEIS is expected to be released late this year with the final PEIS completed in 2011.

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Renewables to total 23% of world electric generation by 2035

The renewable energy share of world electricity generation is expected to increase from 18 percent in 2007 to 23 percent in 2035, projects the Energy Information Administration (EIA) in its [2010 International Energy Outlook](#), released May 25. EIA also projects that coal-fired power generation will increase by an annual average of 2.3 percent, making coal the second fastest-growing source for electricity unless future legislation limits greenhouse gas emissions.

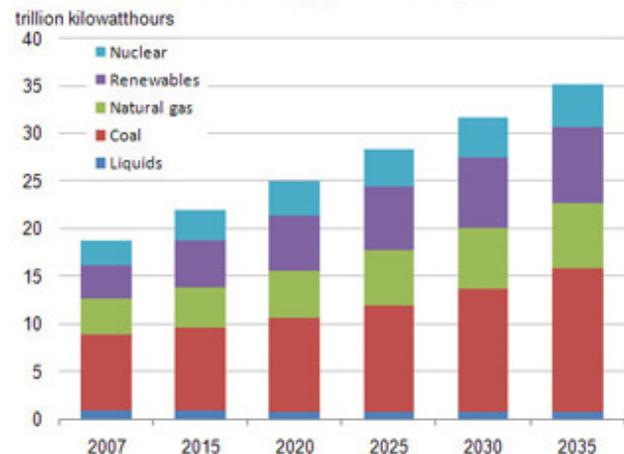
While renewables will continue to be the fastest growing source of world energy supply through 2035, fossil fuels "are still set to meet more than three-fourths of total energy needs by 2035 assuming current policies are unchanged," said EIA's Richard Newel.

Besides the annual 2.3 percent increase in coal-fired generation, EIA projects that world coal consumption will increase 1.6 percent annually—from 132 quadrillion British thermal units (Btu) in 2007 to 206 quadrillion Btu in 2035—unless there are binding international agreements that limit greenhouse gas emissions.

Of the 4.5 trillion kilowatt-hours (kwh) of increased renewable energy generation over the projected period, EIA attributes 54 percent to hydroelectric power and 26 percent to wind power. Biomass for heat and power production currently provides the vast majority of renewable energy consumed in the industrial sector at 90 percent. It is expected to remain the largest component of the industrial sector's renewable energy mix through 2035.

The report also predicts that consumption of worldwide marketed energy—energy and fuels that are sold and purchased in commercial markets—will increase nearly 49 percent from 2007 to 2035. The 31 countries belonging to the Organization for Economic Co-operation and Development ([OECD](#)), including Australia, Canada, France, Germany, Italy, Japan, England and the United States, are projected to see a 14-

Figure 6. World net electricity generation by fuel



World renewable energy use for electricity generation is expected to grow by about 3 percent annually and renewables should make up 23% of the world's electricity generation by 2035.

Courtesy of: EIA

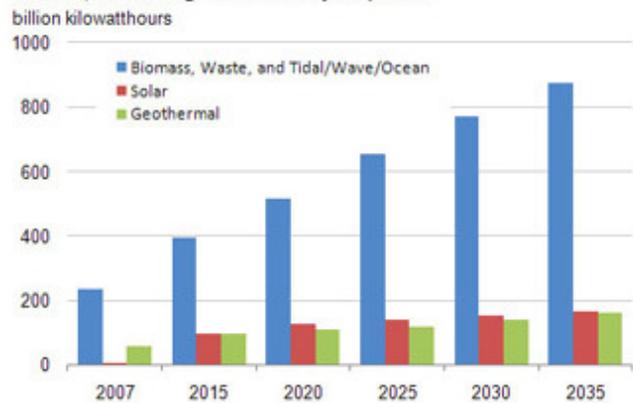
percent increase in energy consumption. Non-OECD countries, including Russia, China and India, will see an 84-percent increase.

The report also indicates that since the worldwide economic downturn from 2007 to 2009 has not fully stabilized, declines in fuel consumption are expected to recover and trend upward. Projected worldwide use of liquids and other petroleum (petroleum-derived fuels and non-petroleum-derived liquid fuels, such as ethanol and biodiesel, coal-to-liquids and gas-to-liquids, natural gas liquids, crude oil consumed as a fuel and liquid hydrogen) increases from 86.1 barrels per day in 2007 to 110.6 barrels per day in 2035. Total world energy use rises from 495 quadrillion Btu in 2007 to 739 quadrillion Btu in 2035.

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Figure 7. World renewable electricity generation by energy source, excluding wind and hydropower



Although they will still be a small part of total renewable generation, renewables other than hydroelectricity and wind, including solar, geothermal, biomass, waste and tidal/wave/oceanic energy, will increase at a rapid rate.

Courtesy of EIA

Wind slowdown in 1st quarter renews call for national RES

While wind power production in Texas hit an all-time high on the opening day of the American Wind Energy Association 2010 (AWEA) conference, one month earlier AWEA had reported signs of industry slowdowns for the first quarter of 2010.

On May 23, wind power hit an all-time production high in Texas—the site of this year’s conference—with 6,721 megawatts (MW) produced at 5:16 p.m.—meeting 14 percent of the state’s peak electricity demand on that hot afternoon. That’s positive news coming on the heels of AWEA’s [announcement](#) April 29 that only 539 MW of new U.S. wind capacity was added in the first three months of 2010—the lowest levels since early 2007. If annualized, that’s about 2,156 MW installed this year, compared to 10,000 MW in 2009 and almost 8,500 MW in 2008.



It’s likely that when this barn was built in rural Illinois, no one could have predicted it would be surrounded by wind turbines someday. Industry experts would like to make sure that wind stays vital in the coming years.

Electricity demand, expiring tax credits, a drop in natural gas prices and the lack of a [national renewable electricity standard](#) (RES) to encourage manufacturing investment were among the industry challenges the 23,000 conference participants and industry chief executives discussed. Other challenges include the high cost to develop wind farms, a shortage of available land for wind farm sites and the difficulty of transmitting the electricity to remote load centers.

AWEA CEO Denise Bode said, “Without a firm national commitment to renewable energy, America is competing with one hand tied behind its back. Companies investing here in the United States in

Photo courtesy of: wikipedia commons (Dori)

new wind turbine component manufacturing facilities are doing so on a leap of faith.”

Bode said to keep these factories running and unleash pent-up investment, Congress needs to urgently enact a national RES that “will at long last establish policy certainty for this bright spot in our economy.” Such a national standard, which the wind industry believes will free up credit and would ensure that renewable energy is included in each state’s future, is in the clean [energy bill](#) pending before the Senate. It calls for supplying 15 percent of our nation’s electricity needs through 2039 with renewable energy.

Clean energy legislation was among the topics that the keynote speakers addressed. Touting DOE’s \$3 billion of investments in the wind industry, Cathy Zoi, DOE assistant secretary for the Energy Efficiency and Renewable Energy Office, stressed the need for more wind-generated energy. North Dakota Sen. Byron Dorgan announced upcoming energy legislation that calls for a 15-percent RES and also promised an amendment on the floor for an increase to 20 percent. Former President George W. Bush, another keynote speaker, said, “It’s in our economic interests that we diversify away from oil. It’s in our environmental interest. And, finally, it’s in our national security interest.”

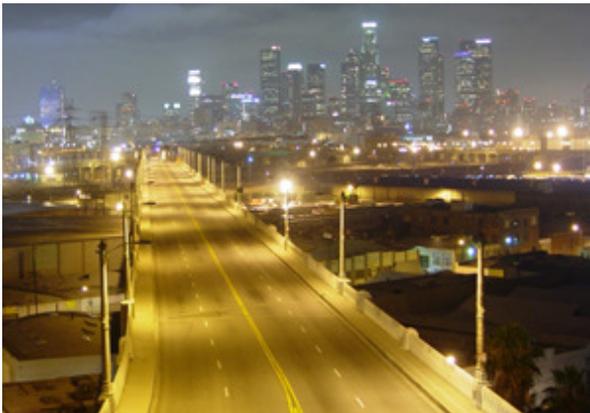
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City of angels becoming city of LED lights

Energy-saving light-emitting diode (LED) [fixtures](#) are transforming Los Angeles roadside light poles. Replacing traditional light bulbs with LEDs has already reduced the city’s electricity bill by about 55 percent and may save local taxpayers about \$10 million annually once all LED lights are installed.

Paris is often called the city of lights, but Los Angeles could also vie for that honor with the second largest municipal street lighting system in America. “We have about 210,000 street lights, and our electricity bill was about \$17 million a year to keep the street lights on,” said Ed Ebrahimian, director of the [Street Lighting Bureau](#) for Los Angeles.



This is the 6th Street bridge in L.A. lit by high-pressure sodium lights before the LED conversion.

Photo courtesy of: City of Los Angeles

Like many cities, Los Angeles was looking for ways to streamline its operating costs. “One thing that really stood out was the electricity bill,” Ebrahimian said. “Once we realized the LED technology was here and solid, we got together with the Los Angeles Department of Water and Power (LADWP), the [Mayor’s office](#) and the [Clinton Climate Initiative](#) to formulate our LED street light energy efficiency program.”

In one year, Los Angeles has installed about 20,000 LED street lights, and Ebrahimian said the majority of calls from the public are positive. He noted, “We have actually received a lot of calls from residents wondering when it will be their turn to have their street lights changed over.”

Local law enforcement is also pleased. "The L.A. Police Department loves it, especially the helicopter air support," said Ebrahimi. He explained that the LED's white light is distributed more uniformly on the pavement. "This has improved the visibility in the parts of the city where they have been installed," he said.



This is what the 6th Street bridge looks like after the LED traffic lights were installed.

Photo courtesy of: City of Los Angeles

To finance the program, LADWP loaned the city \$50 million for the five-year program, which Ebrahimi expects to pay off in seven years or earlier due to expected \$10 million annual savings, including \$7.5 million in electricity costs and \$2.5 million for maintenance. Noting that the city has already saved \$700,000 in electricity costs since the initial 20,000 fixtures were installed, Ebrahimi said, "The program anticipated a 40-percent energy savings, but it has been even more with energy savings at 55 percent, so it's already exceeding our program goals."

Los Angeles is not the only place undergoing a lighting transformation. [Royal Phillips Electronics](#) recently unveiled its 12-watt EnduraLED bulb, the industry's first replacement for the 60-watt incandescent bulb, 425 million of which are sold annually in the United

States. DOE's L-prize [competition](#) spurred development of this [LED bulb](#), which is expected to deliver an 80-percent energy savings and last 25 times longer than the incandescent. Philips' entry was the first submission for the L-Prize.

According to Phillips' calculations, this LED replacement could save 32.6 terawatt-hours of electricity in one year, enough to power the lights of 16.7 million U.S. households.

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Solar car race provides chance for students to shine

This week's [American Solar Challenge](#) has given university students the chance not only to shine, but to show off the latest in solar power technologies. Twelve teams began competing in this year's race, which covers 1,100 miles from Tulsa, Okla., to Naperville, Ill from June 20 to 26.

The seven-day race challenges students to design a car with highly efficient solar cells and batteries that can propel the vehicle to top speeds. Because of efficiencies up to 25 percent (compared to 20 percent for silicon cells), gallium-arsenide solar cells used in satellites are now the technology of choice for the teams. Most solar cars also use lithium ion batteries—similar to the technology used to power a laptop—since they are lightweight and highly efficient. They can generate up to 6 kilowatt-hours to keep the

car running for about three hours at highway speeds.

Much of the race depends on the right strategy to determine when to power the car from the sun as it moves across the horizon or when to use stored power in the batteries. "We have to strategize—at the beginning of the day, we are pulling power from the battery pack to sustain our speed," explained Brian Ignaut, 2007 project manager for the University of Michigan's (U-M) team. "In the middle of the day, we are charging the battery pack back up, making up for what we lost at the beginning. At the end of the day, we are drawing from battery pack." ([video](#))



Stanford University's solar car, the apogee, races along the route in Missouri at an average speed of 55 miles per hour.

Courtesy of: Stanford University

While U-M's Infinium cruised over 100 miles-per-hour during pre-race testing, former race team members admit that "there's a limited amount of energy coming in from the sun, making it infeasible to drive the speed limit the entire race," said Alex Dowling, the team's strategy director in 2009 in [ARS technica](#).

Infinium is now currently in the lead. The [Michigan team is aiming](#) for a third consecutive title.

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Features



The Continental Airlines captain points to the biofuel sticker on the 737's engine before its test flight earlier this year. With four successful test flights now having been flown on U.S. airlines, Chinese airline companies are gearing up to use algae or oily nuts as sources of biofuel.

Photo courtesy of: Continental Airlines

China, U.S. team up on airline biofuel venture

Packages of nuts for airline passengers may have a new meaning as U.S. and Chinese airlines research how to use oily nuts as fuel for their aircraft.

[Bloomberg](#) announced a U.S.-Chinese research venture to develop biofuels using algae or oily nuts as fuel for Chinese aircraft. With four successful biofuel test flights ([video](#)) having now been flown in the United States, projections are that an inaugural Chinese flight could come as early as this year.



A twin-engine Continental Airlines 737 takes off in January 2009 powered in part by an algae and weed fuel mixture.

Photo courtesy of: Continental Airlines

The announcement of this research effort follows a signed agreement between the [Boeing Company](#) and Honeywell and Air China and PetroChina, among other public and private entities. High-level U.S. and Chinese government officials pledged to cooperate closely in renewable energy, reported [Bloomberg](#). "Renewable energy development is central to our cooperation with China," David Sandalow, DOE's assistant secretary for policy and international affairs, said at a conference on **renewable fuel**.

Al Bryant, Boeing's vice president for research and

technology in China, said the fuel could be in use in commercial aviation ([video](#)) in three to five years. Chinese companies have not yet decided which biomass sources to use as a fuel source, but researchers are considering [algae and jatropha](#), a tree grown in south China that produces an oily nut. Bryant noted during the announcement that the research effort is being launched in China because "they've made the decision to move faster," he said.

Newsweek also reports that the research goal is to produce a fuel for commercial airliners that requires no modifications to standard engines. The biofuel will be mixed with standard jet fuel. The effort is being funded in part from \$1.3 million in grants from the [U.S. Trade and Development Agency](#) for China's clean energy efforts.

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The *jatropha curcas*' seeds are used to produce biodiesel.

Courtesy of: wikipedia commons

Biomass now No. 1 energy source in Sweden

Biomass has now surpassed oil to become the No. 1 source for energy generation in Sweden, reports the *Wood Resource Quarterly*. This means Sweden is on track to meet its goal to have renewable energy reach 50 percent of the total energy consumed in the country by the year 2020, reports [renewableenergyworld.com](#).

Biomass accounted for 32% of the total energy consumption in the country. It is projected that biomass consumption will continue to increase by another 10 percent in 2011. Between 2000 and 2009, total energy consumption from biomass in Sweden grew from 88 terawatt-hours (twh) to 115 twh, while the usage of oil-based products declined 21 percent from 142 twh to 112 twh during the same period, according to Svebio, the Swedish Bioenergy Association.

Svebio's president, Gustave Melin, said biomass is used primarily to fuel district heating in Sweden, the heat source for more than half of Swedish multi-family units. [Svebio](#) credits the success of Sweden's renewable energy goals to taxes on sulphur, nitrogen oxide fees and carbon dioxide taxes.



Sweden's [Hedensbyn Skelleftea facility](#) is a combined heat and power plant that generates 260 GWh of heat and 170 GWh of electricity, as well as 130,000 tons of wood pellets from the byproducts of logging and sawmilling.

Since Sweden's biomass sources are primarily wood pulp and logs, the downside to this growth is that the country's higher demand for wood pulp has led to 20-percent price increases since 2005 and a 36-percent increase compared to 2000 prices, according to [carbonpositive.net](#).

In [Biomass Digest](#), Hakan Ekstrom of *Wood Resource Quarterly* said, "Sawmills in central and northern Europe continue to have the highest wood costs in regions producing softwood lumber," noting particularly that Sweden's and Germany's sawlog prices were "28-percent and 15-percent higher in the first quarter of 2010

Photo courtesy of: Mattias Hedström, wikipedia commons
 than in early 2009.” He said Sweden is currently the biggest consumer of wood pellets in the world, consuming more than 20 percent of the world’s production of wood pellets.

[Wood Quarterly](#) said a company’s global cost competitive position depends on its raw material base and the cost of available wood resources. Wood costs account for 40 to 50 percent of the production costs for pulp manufacturing, and 65 to 75 percent of the total production costs for sawmills.

Other challenges for Sweden and the worldwide biomass industry are questions about its carbon neutrality. On June 10, the Manomet Center for Conservation Sciences published the results of a [six-month study](#) (PDF 4.94 MB) that showed the downsides to burning biomass. The report was commissioned by the Massachusetts Department of Energy Resources.

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DOE, USDA issue funding opportunity for biomass R&D

Up to \$33 million is available for biomass research and development projects through a [joint funding opportunity](#) from DOE and the U.S. Department of Agriculture (USDA). The funding opportunity aims to develop new technologies in biofuels, bioenergy and high-value bio-based products.

Pre-applications are due July 13. They must address three technical areas:

- Feedstock development
- Biofuel and bio-based product development and
- Biofuel development analysis

DOE projects it will make one or two awards while USDA anticipates issuing four to seven awards. By September, the agencies will notify those applicants who will be encouraged to submit full applications. They will notify those selected for the awards in early 2011. The average award size is anticipated to be \$5.5 million.

One goal of this funding opportunity is to develop logistics systems that can handle and deliver large amounts of feedstock year-round for [cellulosic biofuels production](#) (PDF 1760 KB). Feedstocks to be considered include: energy crops such as switchgrass, miscanthus, energy cane, sorghum, poplar and willow and agricultural residues (see a DOE [video](#) on producing ethanol from corn cobs); forest resources such as thinnings, wood chips, wood wastes and small diameter trees; and urban wood wastes. Other feedstocks include oilseed crops, animal waste and algae.



DOE is interested in developing systems to handle large amounts of biomass feedstocks, such as wood chips and wood wastes.

Photo courtesy of: wikipedia commons

DOE’s [Biomass Program](#) is focusing its R&D efforts on ensuring that cellulosic ethanol is cost competitive by 2012. For more information on the agencies’ biomass goals, see DOE’s multi-year [program plan](#) (PDF) and the USDA’s [Bio-preferred Program](#), which aims to create a market pull for new

products and technologies.

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News Releases

June 22, 2010

[Richard Lazarus named as executive director of national commission on the BP Deepwater Horizon oil spill and offshore drilling](#)

June 18, 2010

[Five more states reach major Recovery Act weatherization milestone](#)

June 17, 2010

[DOE announces more than \\$76 million for advanced energy-efficient building technologies and commercial building training programs](#)

June 15, 2010

[U.S. scientific team draws on new data, multiple scientific methodologies to reach updated estimate of oil flows from BP's well](#)

June 15, 2010

[Energy Department offers conditional commitment to support Nevada geothermal development with Recovery Act funds](#)

June 11, 2010

[More than \\$60 million in Recovery Act funding to expand local energy efficiency efforts in 20 communities](#)

June 10, 2010

[Department of Energy offers \\$102 million conditional commitment for loan guarantee to U.S. Geothermal, Inc.](#)

June 8, 2010

[DOE makes public detailed information on the BP oil spill](#)

June 4, 2010

[DOE announces \\$29 million in Recovery Act awards for weatherization training centers](#)

June 3, 2010

[DOE requires manufacturers to halt sales of heat pumps and air conditioners violating minimum](#)

[appliance standards](#)

May 28, 2010

[The Department of Energy's scientific response to the oil spill](#)

May 26, 2010

[Deputy Secretary Poneman attends groundbreaking at Tennessee vehicle battery plant](#)

May 21, 2010

[Secretary Chu postpones China trip to continue work on BP oil spill response efforts](#)

May 12, 2010

[DOE congratulates Under Secretary Johnson for technology leadership award](#)

May 12, 2010

[Secretaries Chu and Salazar lead administration team offering federal scientific and technological support to BP engineers](#)

May 11, 2010

[Global leaders meet to collaborate on energy efficiency goals](#)

May 10, 2010

[DOE hosts record number of attendees at annual small business conference](#)

May 7, 2010

[Secretary Chu announces up to \\$62 million for concentrating solar power research and development](#)

May 7, 2010

[Department of Energy announces \\$60 million for small business clean energy innovation projects](#)

May 6, 2010

[DOE, USDA announce funding for biomass research and development initiative](#)

May 6, 2010

[DOE announces RFI on rare earth metals](#)

May 5, 2010

[DOE announces awardees for the Industrial Energy Efficiency Grand Challenge](#)

May 3, 2010

[North Carolina School of Science and Mathematics from Durham, NC and Albuquerque Academy from Albuquerque, NM win the U.S. Department of Energy National Science Bowl](#)

April 29, 2010

[First Lady Michelle Obama to participate in Energy Dept.'s National Science Bowl Finals on May 3](#)

April 28, 2010

[Secretary Chu will travel to China to highlight clean energy partnerships](#)

April 28, 2010

[Secretary Chu testimony to Senate Energy and Water Development Subcommittee](#)

April 26, 2010

[U.S. and UAE sign agreement to strengthen cooperation on clean energy](#)

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[Department of Energy announces closing of \\$529 million loan to Fisker Automotive](#)

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[Department of Energy announces 20th Annual National Science Bowl](#)

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[Secretary Chu Webchat with the Washington Post](#)

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[Secretary Chu announces more than \\$200 million for solar and water power technologies](#)

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[Vice President Biden kicks off five days of Earth Day activities with announcement of major new energy efficiency effort](#)

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[U.S. Department of Energy announces student teams to compete in 2011 Solar Decathlon](#)

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[Secretary Chu announces new partnerships under the Energy and Climate Partnership of the Americas](#)

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[Department of Energy issues federal fleet management guidance](#)

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[U.S. EPA, DOE announce changes to bolster ENERGY STAR program](#)

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[Obama Administration announces nearly \\$100 million for Smart Grid workforce training and development](#)

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[Department of Energy releases Open Government Plan](#)

April 7, 2010

[Department of Energy awards \\$9 million in grants for science and technical research to historically Black colleges and universities in South Carolina and Georgia](#)

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[University of Central Florida students' energy-saving work showcased in new Department of Energy video](#)

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[Secretary Chu announces more stringent appliance standards for home water heaters and other heating](#)

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Reader Comments

May

New study says grid can handle large increase in wind, solar

"Having read the 500-plus page report (Western Wind and Solar Integration Study), I come to the conclusion that to achieve the outcome the report arrives at depends entirely on technologies and regulation that may not be realistic. For example, farmers have been trying to predict weather events even a day ahead to optimize their efforts without success; I don't believe minute-by-minute wind forecasting is possible. Even a shift in the clouds can upset solar, though that may be mitigated with small storage. On grid scale, large storage seems more likely to achieve energy security and stabilization while adding benefits controlled by man rather than nature."

G.

'Oyster' device is a pearl in the ocean

"This is a very informative article. I think that the Oyster is a great concept. However, as someone who tracks the wave industry, so many companies in this space over promise and under deliver. I am glad that Oyster is operating. We need to see more machines actually working before we promise thousands of megawatts of electricity from the sea. Keep us posted on progress."

N.

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[Secretary Chu's testimony to Senate Armed Services Committee](#)

Subject: New START treaty to reduce role of nuclear weapons

June 9, 2010

[Secretary Chu's letter to Senator Richard Lugar](#)

Subject: Senator Lugar's "Practical Energy and Climate Plan Act of 2010"

May 25, 2010

[Readout of President Obama's Call With Secretary Chu](#)

Subject: President Obama's discussion about the scientific and technical assessment of BP's plans to stop the oil leak in the Gulf of Mexico

May 21, 2010

[Secretary Chu Washington University commencement address](#)

Subject: Encouraging graduates to "do something that matters"

April 16, 2010

[Readout of Secretary Chu's bilateral meetings at the Energy and Climate Partnership of the Americas](#)

Subject: Energy issues affecting the United States and Canada

April 16, 2010

[Secretaries Chu and Clinton praise energy cooperation across the Americas in joint op-ed](#)

Subject: Praise for growing cooperation on energy and climate issues among Western Hemisphere nations

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Events

If you have an event scheduled of regional or national interest to the energy efficiency and renewable energy communities, please contact me with pertinent information and a Web link and we will include it in EERE Program News. — [Carolyn Hinkley](#)

[Federal Energy Management Program \(FEMP\)](#) — holds technical workshops around the nation throughout the year, plus webinars; check this link for continuously updated information on these events.

[Industrial Technologies Program](#) — holds specialized workshops and on-line webinars year-around. Check this link for a continuously updated schedule.

[Intersolar North America](#) — July 13-15, San Francisco, Calif.

This conference promotes the development of business opportunities throughout the U.S. solar industry. It focuses on photovoltaics and solar thermal technology and is geared toward manufacturers, suppliers, wholesalers and service providers as an international industry meeting point.

[Energy in the Southwest](#) — July 14-15, Santa Fe, N.M.

This conference focuses on tribes developing their own energy projects, forming joint ventures and building new alliances. Learn from tribal leaders and industry executives about climate change policy, methods to promote renewables and how to put together a financial package for project development. It is geared toward attorneys, tribal representatives and government and industry executives.

[GovEnergy 2010](#) — Aug. 15-18, Dallas, Texas

GovEnergy 2010 will provide effective energy management training to federal employees and their associated stakeholders, encouraging application of best practices, products, and services within the federal sector.

[Offshore Wind Energy in North America's Great Lakes](#) — Sept. 9-10, Toronto, Canada

Hear lessons learned from the installation of 5-megawatt turbines in deeper waters, the economic pros and cons of sourcing domestic components and stringent qualification requirements.

[Southwest Renewable Energy Conference 2010](#) — Sept. 15-16, Santa Fe, N.M.

This conference offers thoughtful evaluation and discussion of renewable energy development on tribal, federal, state and private lands, including highlights of successful case studies of energy efficiency projects and implementation of distributed generation.

[7th Annual NH3 Fuel Conference](#) — Sept. 26-28, Romulus, Mich.

Participants can expect an agenda covering all areas of ammonia, or NH₃, as a solution to energy dependence. It can be produced from any raw energy source, such as wind, solar, biomass, coal, nuclear and hydro. Topics will include production, storage, delivery, end uses and safety.

[2010 IEEE Conference](#) — Sept. 27-28, Waltham, Mass.

Conference will provide a forum to discuss new technologies and innovative applications of current technologies for generation, transmission, storage, monitoring and demand management.

[2010 Excellence in Building Conference and Expo](#) — Oct. 12-14, Portland, Ore.

The conference will feature timely, relevant resources and education about energy efficient houses that work.

[Geothermal Energy Expo 2010](#) — Oct. 24-27, Sacramento, Calif.

The expo hosts the world's largest gathering of vendors providing support for geothermal resource exploration, characterization, development, production and management. It will be held in tandem with the Geothermal Resources Council's [Annual Meeting](#).

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