

Weekly Clean Energy Roundup: November 15, 2006

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News and Events

Washington State Voters Mandate Efficiency and Renewable Energy

Voters in Washington State have approved Initiative Measure 937, which calls for the state's investor-owned utilities to draw on new renewable energy sources for 15 percent of their electricity supply by 2020. The measure allows utilities to buy renewable energy credits to help meet the requirement, and gives double credit for smaller, customer-sited systems, so long as the utility buys the renewable energy credits for those systems. The renewable power can be produced from wind, solar, geothermal, or ocean energy, as well as hydropower and certain types of biomass energy. The measure also calls for utilities to pursue all available energy-saving efforts that are cost-effective, reliable, and feasible, allowing credit for customer-owned facilities that generate both heat and power. See the full text of the initiative ([PDF 33 KB](#)).

The measure passed by a small margin, with the unofficial vote count showing 51.6 percent of voters in favor. A study by the Union of Concerned Scientists (UCS) found that the measure would save money for consumers while bringing economic and environmental benefits to the state. See the [election results](#) and the [UCS press release](#).

Meanwhile, voters in Boulder, Colorado, have approved a ballot issue adding an extra tax on their electricity bills to fund the city's Climate Action Plan. The tax will fund programs to increase energy efficiency and renewable energy use; reduce emissions from motor vehicles; and take other steps to reduce the city's greenhouse gas emissions. According to the unofficial vote count, the ballot issue passed with 60.4 percent of the voters in favor. See the ballot measure ([PDF 513 KB](#)) and the [election results](#).

International Energy Agency Points the Way to a Clean Energy Future

The energy future our world is facing today, based on projections of current trends, is "dirty, insecure, and expensive," according to Claude Mandil, executive director of the International Energy Agency (IEA). The IEA's "World Energy Outlook 2006" makes that clear in its reference scenario, which shows global energy demand increasing 53 percent by 2030, while global carbon dioxide emissions increase by 55 percent. But the IEA is actually optimistic, pointing out that key government policies and measures could easily put the world on a sustainable energy path. The IEA's "alternative policy scenario," which includes these policies and measures, reduces global energy demand by 10 percent by 2030, causing global carbon dioxide emissions to drop by 16 percent. In developed countries, oil imports and carbon dioxide emissions peak in 2015 and then begin to fall. According to the IEA, improved energy efficiency could yield most of the energy savings, combined with a greater use of renewable energy and nuclear power. "The good news," says Mr. Mandil, "is that these policies are very cost-effective." See the [IEA press release](#).

Two other recent reports confirm the IEA's positive outlook. "American Energy: The Renewable Path to Energy

Security," released in September by the Worldwatch Institute and the Center for American Progress, argues that policies to encourage renewable energy and energy efficiency could gradually transform the U.S. energy system. Likewise, a Rand Corporation study released on Monday finds that by 2025, renewable resources could provide 25 percent of the electricity and motor fuels used in the United States. The study concludes that such a shift could occur at little or no additional cost, assuming that fossil fuel prices remain high and renewable energy technologies continue their historic downward cost trend. See the [Worldwatch Institute press release](#), the full "American Energy" report ([PDF 3 MB](#)), the [Rand press release](#), and the Rand report ([PDF 633 KB](#)).

DOE Research Project Yields New Low-Speed Wind Turbine Blade

Knight & Carver has produced the first in a series of wind turbine blades that, according to the company, "ranks among the industry's most innovative advances in wind energy production." Called the "STAR," for "Sweep Twist Adaptive Rotor," the 90-foot blade is curved to relieve pressure on both the blade and the turbine and features a gently curving tip to capture low-speed winds. Developed with the help of DOE's Sandia National Laboratories as part of a DOE research project, the STAR blade is designed to take maximum advantage of all wind speeds. The new blade was manufactured at Knight & Carver's blade division in San Diego, California, in early November, and will undergo static testing in December. See the [Knight & Carver press release](#).

Geothermal Power Continues to Grow Rapidly in 2006

Roughly 58 new geothermal energy projects are now under development in the United States, according to a new survey from the Geothermal Energy Association (GEA). Compared to a March survey by GEA, the new survey adds a dozen new geothermal energy projects and adds Alaska to the list of states producing geothermal power. The new GEA survey identifies power projects under development in Alaska, Arizona, California, Hawaii, Idaho, Nevada, New Mexico, Oregon, and Utah. See the GEA press release ([PDF 50 KB](#)).

Among the efforts currently underway is a project to build a 25.5-megawatt geothermal plant at The Geysers geothermal field, located 75 miles north of San Francisco, California. Western GeoPower Corporation announced in mid-October that a feasibility study supports building a 25.5-megawatt plant on the site, which is the former location of a 62-megawatt geothermal plant owned by Pacific Gas & Electric Company. Western GeoPower aims to begin drilling at the site early next year and hopes to start developing the power plant in mid-2008. See the [Western GeoPower press release](#).

Waste-to-Energy Projects Gain Momentum in the United States

A large number of projects are now underway throughout the United States to convert waste into electricity. Most projects are using methane generated either by landfills or by anaerobic digesters, devices that use anaerobic bacteria to break down organic substances. In addition, two projects take unique approaches to converting waste to energy. One involves Ameren Corporation's coal plant in St. Louis, Missouri, which is now blending coal with paint solids waste from a nearby DaimlerChrysler auto plant. The pilot program will burn 1,000 tons of paint solids that otherwise would have gone to a landfill. Another unique project, led by Intrinergy, will employ state-of-the-art gasification units to convert wood waste, shredded plastic automotive parts, and other waste into a gas that will fuel two pipe manufacturing plants in Alabama. Intrinergy plans to build and begin operating the two "synthesis gas" units next year. See the press releases from [Ameren](#) and [Intrinergy](#) ([PDF 359 KB](#)).

Landfill gas-to-energy efforts are progressing in Alabama, California, Maryland, New Jersey, and Pennsylvania. In Moody, Alabama, the U.S. Environmental Protection Agency (EPA) provided technical assistance to the Jenkins Brick Company, which recently opened a new manufacturing plant that uses landfill gas to fuel its brick kilns. A 6.5-mile pipeline carries the gas from the landfill, which currently provides 40 percent of the plant's energy needs. In Mountain View, California, Alza Corporation is piping landfill gas to a facility that produces three megawatts of power and hot water for Alza's headquarter facilities. In Maryland, an effort is underway to run a pipeline from a landfill to the nearby Fort Meade army base, where the landfill gas will help fuel boilers. Nearby in New Jersey, Marina Energy and DCO Energy are working with Burlington County to build a 7.2-megawatt power plant at the county landfill by the end of 2007. GE Energy Financial Services (EFS) is financing two other landfill gas projects in New Jersey, which will

produce a total of 7.4 megawatts of power when completed later this year. And finally, recognizing that pipelines are a key part of landfill gas projects, the State of Pennsylvania is encouraging such projects by making highway right-of-ways available for landfill gas pipelines. See the press releases from the [EPA](#), [Alza](#), Fort Meade ([PDF 114 KB](#)), [Marina Energy](#), GE EFS ([PDF 119 KB](#)), and the [Pennsylvania Department of Environmental Protection](#).

Anaerobic digester projects are underway in California, Maryland, and Nebraska. FuelCell Energy, Inc. has one operating project and two planned projects in California, each involving fuel cells that use methane from anaerobic digesters as fuel. The operating project uses beer waste to fuel its digesters, while the planned projects will be fueled with milk processing waste and wastewater. Wastewater is also the methane source for a project in Baltimore, Maryland. The city has signed an agreement with Johnson Controls, Inc. to produce electricity, steam, and hot water from the methane produced at a wastewater treatment plant. Manure is the energy source for Environmental Power Corporation (EPC), which has signed manure-handling agreements with six California dairies, allowing the company to install digesters at the dairies. Combined, the digesters will produce 8 million cubic feet of pipeline-quality methane per day, which EPC plans to sell to Pacific Gas & Electric Company (PG&E). EPC also plans to install digesters at Swift & Company's beef processing plant in Grand Island, Nebraska. Meanwhile, the University of California, Davis claims to have developed an improved anaerobic digester, which produces both methane and hydrogen gas. The university is fueling the digester with eight tons per week of food scraps produced at local restaurants. See the FuelCell Energy press releases on the projects using [beer waste](#), [milk processing waste](#), and [wastewater](#); the [Johnson Controls press release](#); the [EPC](#) and [PG&E](#) press releases on the cow manure project; the [EPC press release](#) on the beef processing plant; and the [UC Davis press release](#).

Wal-Mart Approves of LED Lights but Remains Unsure About Wind Power

After one year of operating two "experimental stores" in Colorado and Texas, Wal-Mart Stores Inc. is sold on at least one energy technology: LED lights. The company has already concluded that the solid-state lights, which use light-emitting diodes (LEDs), "use less electricity, contribute less heat, and have a longer lifespan" than traditional lights. Although Wal-Mart has already been using LEDs for all its building-mounted exterior lit signs for the last two years, the company has now decided to integrate these lights into freezer cases in new Wal-Mart and Sam's Club stores nationwide, beginning in January 2007. The benefits of LEDs are multiplied in freezer cases, where heat generated by lighting adds to the load on the freezers. Replacing freezer lights can also be a difficult and energy-consuming task, so the LEDs' longevity is also a benefit.

The company is much less certain about its wind turbines, which have suffered from mechanical problems. However, Wal-Mart hopes to correct the problems and will "continue with the plan to provide these and eventually other stores with renewable power." Wal-Mart is evaluating its two experimental stores for three years with help from DOE: the National Renewable Energy Laboratory is monitoring the Aurora, Colorado, store, while the Oak Ridge National Laboratory is monitoring the store in McKinney, Texas. See the [Wal-Mart press release](#).

Energy Connections

Oil Companies Plan to Modify and Expand U.S. Refineries

With the U.S. demand for gasoline and other petroleum products continuing to increase, at least three major oil companies are planning to significantly expand their refineries in the United States. BP announced in late September a \$3 billion plan to expand its Whiting, Indiana, plant to increase its production capacity by 15 percent, which equals about 1.7 million additional gallons of gasoline and diesel fuel each day. However, the main focus of the Indiana project is to allow the refinery to process heavy crude oil from Canadian oil sands.

Marathon Oil Company is also considering modifying its refineries in Detroit, Michigan, and Catlettsburg, Kentucky, to handle Canadian heavy crude oil. Marathon has also approved a \$3.2 billion project to increase the capacity of its Garyville, Louisiana, refinery by nearly three quarters, to a total capacity of 425,000 barrels of oil per day. On Monday, Chevron Corporation joined the fray, announcing plans to expand its refinery in Pascagoula, Mississippi, by about 15 percent, boosting gasoline production by 750,000 gallons per day. BP and Marathon plan to begin

construction next year, while Chevron is aiming at 2008. See the [BP press release](#); the Marathon press releases about the [Canadian heavy crude oil](#) and [Louisiana](#) refinery projects; and the [Chevron press release](#).

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Kevin Eber is the Editor of EREE Network News, a weekly publication of the U.S. Department of Energy's [Office of Energy Efficiency and Renewable Energy \(EERE\)](#).

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