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## Weekly Clean Energy Roundup: June 8, 2005

Jun 08, 2005

Page [1](#) | [2](#) | [3](#)

### News and Events

- [DOE Offers Guide to Building Energy Efficient Homes in the Southwest](#)
- [Study Finds Huge Potential for White LEDs in the Developing World](#)
- [EPA Requires Ethanol Use in California, Connecticut, New York](#)
- [New Process Converts Sugars Into Diesel-Fuel Substitute](#)
- [Food and Paper Industries Pursue Energy Savings](#)
- [South Korea to Build World's Largest Tidal Energy Plant](#)

### Site News

World Green Building Council

### Energy Connections

DOE Offers Energy-Saving Tips to Cut Summer Cooling Bills

## News and Events

### **DOE Offers Guide to Building Energy Efficient Homes in the Southwest**

DOE has issued a free guide to the construction of energy-efficient homes in the arid climate of the southwestern United States, a region that stretches west from central Texas and the Oklahoma panhandle, encompasses southern New Mexico and Arizona (including parts of Colorado, Utah, and Nevada), and extends into the non-coastal parts of California, continuing north to near the Oregon border. The second guide in the Building America Best Practices series, "Volume 2: Hot-Dry, Mixed-Dry," released on May 31st, addresses the challenge of maximizing energy efficiency while preserving the comfort of homes in both hot and dry climates and in dry climates with a mix of hot and cold weather. Equipped with this guide, builders and homeowners will be able to build high-quality, energy-efficient homes in such climates, saving 30 percent in space conditioning and water heating each year. See the [DOE press release](#).

As part of a continuing effort to provide consumers guidance on saving money through improving home energy efficiency, DOE's regional building guides offer tips to families and contractors on how to build energy-saving homes in different climates across the country. Volume 1 of the Best Practices series, focusing on construction in the hot and humid climate of the South, was published earlier this year. Upcoming releases in this series will include an edition on cold climates, available June 22nd; an edition on humid climates with a mix of hot and cold weather, available July 29th; and an edition on marine climates for coastal and island locations, available in early 2006. The guides are being developed by DOE's Building America program, which conducts and sponsors research and development in building

### INSIDER

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technologies aimed at improving the comfort and efficiency of U.S. homes. For more details and to download these guides, see the [Building America Web site](#).

### Study Finds Huge Potential for White LEDs in the Developing World

Battery-powered lamps using white light-emitting diodes (LEDs) could provide a more cost-effective and energy-saving light source for the developing world, according to a researcher at DOE's Lawrence Berkeley National Laboratory (LBNL). In an article published in the May 27th edition of Science magazine, Evan Mills notes that 1.6 billion people still lack access to electricity and instead rely on low-tech light sources such as candles and kerosene lamps. In addition to being weak and inconvenient light sources, such light sources are also expensive and energy wasteful. According to Mills, the cost per unit of simple kerosene-based lighting is about 600 times higher than lighting from a 1-watt white LED, powered by a nickel-metal-hydride battery and recharged with a solar cell. Mills estimates that fuel-based lighting throughout the world consumes 77 billion liters of fuel annually, at a total cost of \$38 billion per year, or \$77 per household.

Illumination in industrialized countries is available at 1000 times the energy efficiency of lighting sources used in non-electrified households, says Mills. In particular, Mills notes that 1-watt white-light LEDs that are commercially available today can deliver more light to tasks than a 100-watt incandescent light bulb. See the [LBNL press release](#) and the [full article](#), posted on the LBNL Web site.

In the United States, researchers continue to achieve dramatic gains in the performance of white LEDs, while all types of LEDs are finding their way into new markets. Scientists at the Lighting Research Center at New York's Rensselaer Polytechnic Institute (RPI) have found a way to squeeze more than 80 lumens per watt out of a white-light LED, a higher efficiency than the 60 lumens per watt achieved by today's compact fluorescent lamps. The RPI researchers managed to reduce losses by separating the white-light-emitting phosphors from the ultraviolet-light-emitting semiconductor, thereby causing less ultraviolet light to be lost within the device. The Lighting Research Center has also conducted a marketing study, which found that consumers prefer the use of energy-saving colored LEDs in store window displays. Looking towards more high-tech applications, companies such as Hella, Lumileds, Cree, and Osram Opto Semiconductors, Inc. are developing LEDs for car headlights and taillights and for backlighting systems in LCD monitors and televisions. See the press releases from [RPI](#) and its [Lighting Research Center](#) as well as from [Hella](#), [Lumileds](#), [Cree](#), and [Osram](#).

[NEXT](#)

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