EPA United States Environmental Protection Agency

EnergizingEPA

Office of Administration and Resources Management's Newsletter on Energy Conservation and Sustainable Facilities

April 2007

EPA Recognizes 2006 Sustainability Leaders

Btu Buster Award
- Rick Dreisch
- Rodney Booth

Energy Partner of the Year–Field
- Steve Dorer

Green Thumb Award
- Mid-Continent Ecology Division Laboratory

H_2Overachiever Award
- Linda Donahue
- Robert Manos
- Stephanie Bailey
- Bob Beane

Leading Edge Award
- Russell Ahlgren
- Mark Tagliabue
- Chet McLaughlin
- Region 7 Emergency Response Facility Relocation Team

Lifetime Achievement Award
- Gail Miller Wray

P2 Partners of the Year
- Ruth Schenk
- Dorothy Branham

Reporter of the Year
- Fred Childers

Reporter of the Year–Honorable Mention
- Art Zimmerman

Senior Management Advocates for Sustainability
- Chris Grundler
- Martha Cuppy

Sustainable Partner of the Year
- Cathy Berlow

For more details about EPA's 2006 sustainability award winners, please visit <www.epa.gov/oaintrnt/champions/index.htm>.

New "Mile-High" Denver Region 8 Headquarters Features Green Design

You won't find any tar or asphalt on the roof of EPA's new Region 8 headquarters building in Denver, Colorado. That's because the roof is covered with more than 19,000 square feet of vegetation. The building's green roof—the first such roof in Denver—is covered with drought-resistant plants that require no irrigation, reduce building temperatures, and filter air pollution from the bustling downtown area. These plants are also expected to decrease stormwater runoff by nearly 30 percent, which will ease pressure on the city's sewer system and prevent water pollution associated with runoff.

It's quite a view from the top, but it's just the beginning of what makes EPA's Region 8 headquarters among the greenest buildings in the nation. In January 2007, the Agency opened its new Denver facility, which from early in the process was designed to reduce the environmental impact on the surrounding Rocky Mountain region.

Since Denver enjoys more than 300 days of sunshine annually, the building employs an extensive daylighting scheme with lighting controls, occupancy sensors, and high-performance glass windows, which minimize the use of artificial light. Denver is also known for its cooler, low-humidity air, so EPA installed a system to use this air, when appropriate, to cool the building, thus providing more fresh air to the occupants and increasing the overall energy efficiency of the ventilation system. In addition, the facility's under-floor air delivery maximizes cooling efficiency, as air delivered from below requires less cooling than air from overhead ducts.

Downtown Denver as seen from the green roof on Region 8's new headquarters.

The Agency anticipates these energy-saving elements will save the building nearly 5 billion British thermal units (Btu) annually—enough to power more than 50 homes for an entire year. The facility is also on track to achieve both the ENERGY STAR® building label and U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED®) Gold certification.

In addition, as part of its commitment to sustainability, EPA entered into a two-year contract with 3 Phases Energy Services, to purchase 4.7 million kilowatt hours of green power annually to offset 100 percent of the building's annual electricity consumption. A 48-panel photovoltaic array on the building's eighth-floor roof provides additional power. Region 8 plans to purchase batteries that, along with the solar panels, will provide emer-

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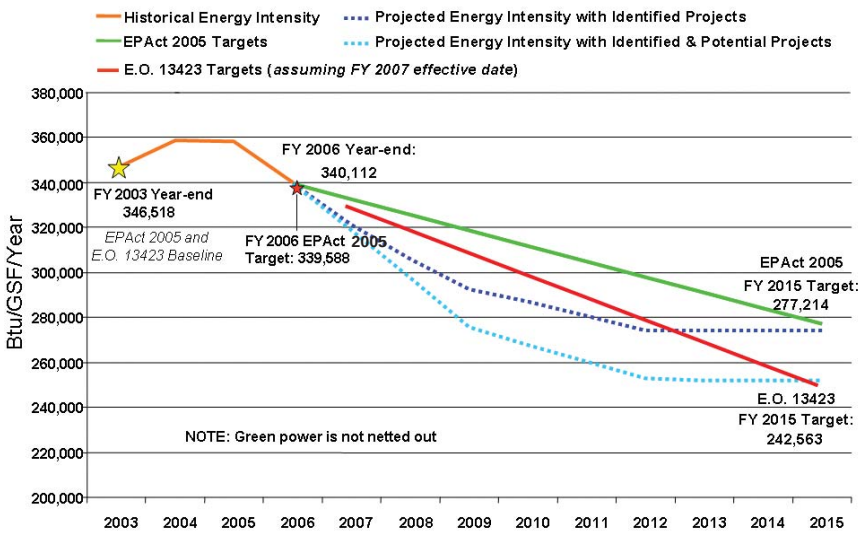
Energy Intensity Drops 5 Percent at EPA Laboratories

Thanks to concerted efforts to improve building efficiency and conserve energy in fiscal year (FY) 2006, EPA reduced its energy intensity by 5 percent compared to FY 2005. The achievement is an important first step as the Agency prepares to meet new, aggressive federal energy efficiency requirements.

EPA is required by law to report energy use at 30 of its laboratories to the U.S. Department of Energy (DOE) and the Office of Management and Budget. In FY 2006, the overall energy intensity (a measure of total energy use in Btu per gross square feet [GSF]) of EPA's reporting laboratories was 340,112 Btu/GSF—5 percent below FY 2005.

This reduction alone was nearly enough to meet EPA's energy efficiency goal under the Energy Policy Act of 2005 (EPAct 2005), which requires all federal facilities to reduce energy intensity by 2 percent annually compared to an FY 2003 baseline (see Figure 1). In FY 2006, DOE allowed agencies to deduct green power purchases from overall energy use, so with EPA's extensive green power purchases netted out, the Agency actually reduced energy intensity in FY 2006 by more than 40 percent compared to its FY 2003 baseline.

Figure 1: EPA Energy Intensity (FY 2003 to FY 2015)



Nearly two-thirds of EPA's laboratories reduced energy use in FY 2006, making this accomplishment possible.

Significant savings at some of the Agency's largest laboratories led the way, including continued progress at the Research Triangle Park (RTP) campus in North Carolina, where the largest absolute energy savings occurred. EPA's RTP facilities comprise about half of the Agency's overall annual energy use and approximately 60 percent of the Agency's total energy reduction in FY 2006. Extensive re-commissioning efforts, improved operations and maintenance (O&M), and mechanical upgrades contributed to a combined reduction of more than 34 billion Btu at the RTP laboratories, with additional savings expected in FY 2007.

Another big saver, EPA's National Vehicle Fuel and Emissions Laboratory in Ann Arbor, Michigan, reduced annual energy use by 24 percent compared to FY 2005 by working closely with the onsite contractor to optimize building

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New Executive Order Strengthens Federal Sustainability Mandate

On January 24, 2007, President George W. Bush signed Executive Order (E.O.) 13423: "*Strengthening Federal Environmental, Energy, and Transportation Management*," which mandates new sustainability goals for the federal government that match or exceed previous statutory and executive order requirements.

These requirements include:

- **Energy Efficiency:** Reduce energy intensity by 30 percent by 2015. This goal seeks to achieve in 10 years the same level of improvement that federal agencies achieved in the last 20 years, and is 50 percent more stringent than the goal in EPAct 2005.
- **Renewable Power:** At least 50 percent of current renewable energy purchases must come from new renewable sources. While EPAct 2005 set a renewable energy goal, this executive order establishes the first requirement for a percentage of renewable energy to come from new sources.
- **Water Consumption:** Reduce water consumption intensity by 2 percent annually through 2015. This is the first executive order to include mandatory water conservation.

E.O. 13423 consolidates and strengthens five previous executive orders (13101, 13123, 13134, 13148, and 13149) and includes implementation of two memoranda of understanding, one on high-performance facilities and the other on electronics stewardship.

Gail Miller Wray Receives Lifetime Achievement Award

After 10 years with EPA, one of the Agency's most dedicated employees, Gail Miller Wray, is retiring. For all of her efforts and successes in advancing recycling and pollution prevention across the Agency and the federal government, Gail was recently awarded a special Lifetime Achievement Award, presented by EPA's Sustainable Facilities Practices Branch (SFPB).

Gail first joined EPA in 1989 as the Agency's recycling coordinator. In 1991, President George Bush signed Executive Order 12780, "*Federal Agency Recycling and the Council on Federal Recycling and Procurement Policy*." Under this order, Gail was appointed head of the council as the federal recycling coordinator, the first federal-wide environmental executive position. During this time, Gail forged new programs and partnerships among agencies across the federal government and helped to organize the first federal agency recycling conference.

"Gail helped turn the spotlight on both recycling collection and buy-recycled programs, launching a decade of awareness and action," said Terry Grist of EPA's Office of Solid Waste.

After some time outside the federal government, Gail returned to EPA in 2001 to work for the Office of Solid Waste; in 2004, she joined SFPB as the headquarters recycling coordinator and reinvigorated the Agency's national pollution prevention effort. Supported by the Office of Solid Waste and Emergency Response, Gail worked diligently to create a standardized recycling campaign across all EPA facilities. Among other accomplishments, she implemented a comprehensive recycling assessment program for all the Agency's facilities and a wide-reaching communications strategy made familiar to EPA employees through the recycling mascot "Slim Bin."

During her time at EPA, Gail converted to being a hybrid car owner, piloted vermicomposting (worm composting) at EPA Headquarters, and organized EPA's single-largest collection of technotrash to date—helping the Office of Solid Waste's Green Team recycle 700 pounds of CDs, diskettes, and other office supplies during its recent move from Crystal City to the Potomac Yard area of Arlington, Virginia. Gail helped the Agency "walk the talk" and worked with some very committed employees along the way.

Gail Miller Wray wraps up a decade at EPA with a smile.

Through her work at EPA and throughout her career, Gail has helped to stimulate the environmental movement we see today. When asked about the future, Gail replied, "I hope that EPA will continue to live its message by supporting the implementers." Through the outstanding EPA employees truly taking strides to help the Agency protect the environment through its own actions, the legacy of Gail Miller Wray will continue.

Energy Intensity

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performance after a series of extensive upgrades financed by an energy savings performance contract. Many other facilities, including EPA's Environmental Science Center in Fort Meade, Maryland, achieved significant energy savings through proactive facility management and an increased focus on O&M practices.

Progress made in FY 2006 is valuable as the Agency prepares to meet new requirements outlined in Executive Order 13423 (see box on page 2), issued in January 2007. Continued efforts to enhance O&M and upgrade facilities with energy-efficient building systems will be critical as EPA works to meet these new energy efficiency goals.

Green Design at Denver Headquarters

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gency power to its Emergency Response Center, in case of an area-wide power failure. Water-saving plumbing fixtures include low-flow faucet devices, waterless urinals in men's restrooms, and dual-flush toilets in all of the restrooms, which will cut the facility's water use by nearly 40 percent.

During construction, the builders used low volatile organic compound interior adhesives, paints, caulks, and sealants to improve indoor air quality for building occupants. EPA also used sustainable and renewable building materials and recycled 80 percent of its construction waste.

For more information, visit EPA's Region 8 Office Web page at <www.epa.gov/greeningepa/facilities/denver-hq.htm> or contact Cathy Berlow at <berlow.cathy@epa.gov> or (202) 564-3739.

Ten Things You Can Do to Celebrate Earth Day

Earth Day was first celebrated on April 22, 1970, by 20 million people across America. Now it is celebrated annually by more than 500 million people in 180 different countries as they take actions, big and small, to protect the environment.

While it goes without saying that EPA employees work to protect the environment when at the office, maybe it's time to bring your work home. Inspired by the environmental management systems (EMS) at various EPA facilities, here are 10 things you can do at home, on Earth Day, and every day to continue to help protect the environment.

1. **Leave Your Car at Home.** Carpool, walk, bike, or take mass transit. Traveling 20 miles a week by alternative transport reduces the average American's car use by 10 percent, reducing carbon dioxide (CO_2) emissions by more than 1,000 pounds per year.
2. **Turn It Off.** Turn off your TV and unplug cell phone chargers and microwaves when they are not in use. Energy consumed by electrical appliances on standby (sometimes called "energy vampires") has been estimated to, on average, account for 9 percent of total annual electricity use in American homes, costing nearly $100 for each home per year.
3. **Eat Fresh and Local.** Fresh food requires 10 times less energy to produce than frozen. Likewise, buying locally produced items will help avoid the 1,200 miles, on average, that food travels from the farm to the plate, as well as the associated air emissions.
4. **Use Less Hot Water.** Using a more efficient showerhead allows one person to avoid emitting about 350 pounds of CO_2 each year. Washing clothes in warm or cold water, instead of hot, can help avoid another 500 pounds of CO_2 emissions annually.
5. **Screw in a Compact Fluorescent.** Replacing one standard incandescent bulb with a compact fluorescent light bulb prevents the emission of approximately 1,250 pounds of CO_2 and saves $25 over the lifetime of that bulb.
6. **Recycle.** Compared to products made from virgin materials, those made from recycled materials require much less energy to produce. For example, recycling one aluminum can saves enough energy to power a 100-watt incandescent bulb for 20 hours or a compact fluorescent light bulb of equivalent brightness for up to 100 hours.
7. **Fix Those Leaks.** On average, plumbing leaks in the home can account for 11,000 gallons of water wasted each year, which is enough to fill a backyard swimming pool.
8. **Shop Sustainably.** Look for products labeled by ENERGY STAR®, WaterSense℠, the Sustainable Forestry Initiative, and USDA's Organic Program. Also try to make sustainable seafood choices and consider test-driving a hybrid car. Most environmentally preferable products on the market actually save the user money over the course of the product's lifetime.
9. **Install High-Efficiency Toilets.** Replacing a pre-1994 toilet with a new model labeled by EPA's WaterSense program can save about 16 percent of total indoor water use. For a typical household, that would save more than 10,000 gallons and $60 per year.
10. **Purchase Green Power.** Get it straight from the source or through renewable energy certificates to help reduce the amount of air pollution associated with your energy use. Visit EPA's Green Power Locator at <www.epa.gov/greenpower/locator> to learn more about options for electricity generated from renewable energy sources in your area.

To learn more about Earth Day and actions you can take to protect the environment, go to <www.earthday.gov>. EPA also has its own Web site dedicated to Earth Day at <www.epa.gov/earthday>. For more information on what environmental management systems are accomplishing at the Agency, visit EPA's EMS Web site at <www.epa.gov/ems>.

Events Not to Miss!

National Conference on Building Commissioning
May 2–4, 2007
Chicago, Illinois
www.peci.org/ncbc/ncbc.htm

Energy 2007
August 5–8, 2007
New Orleans, Louisiana
www.govenergy.com

World Energy Engineering Congress (WEEC)
August 15–17, 2007
Atlanta, Georgia
www.energycongress.com

Labs21 2007 Annual Conference
October 2–4, 2007
Charleston, South Carolina
www.labs21century.gov/conf

Contact Us

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