EPA United States Environmental Protection Agency

EnergizingEPA

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

March 2006

In December 2005, EPA Headquarters met its Environmental Management System (EMS) goal of offsetting 100 percent of Headquarters' estimated electricity use through renewable energy purchases. Headquarters achieved this goal by securing a total of 57.7 million kilowatt hours of green power through five separate contracts for fiscal year 2006.

Headquarters' support of green power will help fund wind power projects and landfill gas facilities, as well as reduce annual carbon dioxide emissions by approximately 50,000 metric tons.

For more information about EPA's green power purchases, visit <www.epa.gov/greeningepa/greenpower.htm> or contact Justin Spenillo at (202) 564-0639 or <spenillo.justin@epa.gov>.

EPA Expands Its Green Fleet With Hydrogen Fuel Cell Vehicle Demonstration

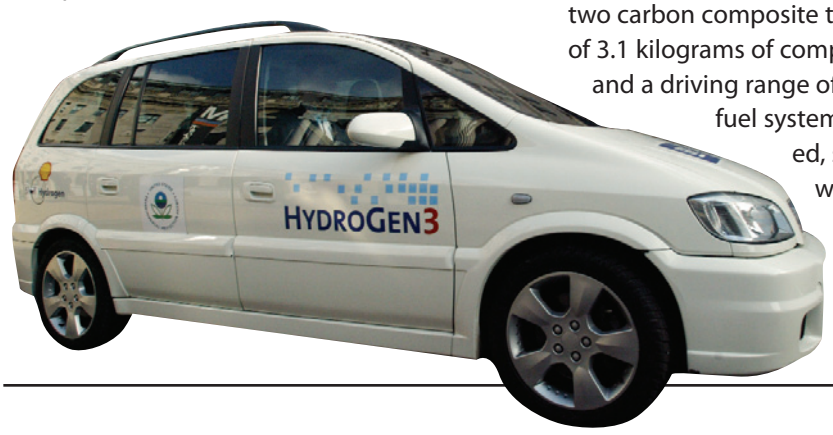
The future may have arrived a few years early at EPA Headquarters. EPA's Facilities Management and Services Division (FMSD) is leasing a General Motors (GM) HydroGen3 fuel cell vehicle for a six-month trial. The Agency is using the car in its executive motor pool to transport senior executives to meetings in the Washington, D.C., area. During that time, both EPA and GM staff will be able to see what kind of infrastructure, fueling, and operational challenges are posed by the use of such vehicles in a real-world environment.

"About a third of EPA's national fleet is already either alternative fuel vehicles (AFVs) or other advanced technology vehicles such as hybrid-electrics," said Luis A. Luna, Assistant Administrator for EPA's Office of Administration and Resources Management. "This partnership takes us a step beyond, letting us operate a cutting-edge hydrogen fuel cell vehicle in day-to-day use. It's just the latest example of how EPA shows its commitment to accelerating environmental progress while maintaining the nation's economic competitiveness."

EPA Assistant Administrator Luis A. Luna stands next to a HydroGen3 fuel cell vehicle.

Hydrogen fuel cells function by harnessing the energy released by the chemical reaction of combining hydrogen and oxygen. By amassing hundreds of fuel cells together, enough energy is supplied to power the vehicle up to 100 miles per hour, with pure water vapor as the only emission. The vehicle used by EPA is one of a fleet of six HydroGen3s that GM operates in the Washington, D.C., area.

GM stores hydrogen fuel onboard the HydroGen3 in either compressed or liquid form. The compressed fuel system is made of two carbon composite tanks with a capacity of 3.1 kilograms of compressed hydrogen and a driving range of 170 miles. The liquid fuel system is a vacuum-insulated, stainless steel tank with a capacity of 4.6 kilograms and a driving range of 250



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EPAct 2005: EPA Faces New, Tougher Energy Challenge

With the Energy Policy Act (EPAct 2005) signed into law on August 8, 2005, EPA faces a major challenge in meeting the new energy efficiency goals outlined for federal agencies, which in most cases supersede Executive Order (E.O.) 13123 energy reduction targets (see below).

The new EPAct 2005 goals require energy intensity reductions of 2 percent each year from a fiscal year (FY) 2003 baseline, beginning in FY 2006 and continuing through FY 2015. Because EPA's energy use in FY 2005 was 3.6 percent higher than in FY 2003, EPA must reduce energy use by 5.4 percent in FY 2006 to meet the new requirements. To achieve this goal, EPA will have to significantly improve energy efficiency while accommodating for variations in weather, which can affect EPA's energy performance by 5 percent in any given year.

In anticipation of these stricter requirements, the Agency developed the "ConservE" program, an energy conservation initiative that involves short- and long-term actions for each of the 29 laboratories for which EPA is required to report annual energy use. EPA distributed a list of 10 operations and maintenance (O&M) best practices for the facilities to attain easy, short-term energy savings from practices such as replacing dirty air filters, greasing motors, and reducing excessive energy use by boilers. EPA hopes to achieve 2 percent energy savings nationwide from this effort.

In addition, EPA has initiated a trial O&M assessment program. Through this program, the Agency's Sustainable Facilities Practices Branch (SFPB) recently conducted reviews at two major EPA facilities and found significant room for improvement in the quality of O&M contractor services, understanding of sophisticated mechanical and control systems, and adequacy of preventative maintenance programs. If energy savings at the two facilities represent potential savings nationally, EPA can expect additional energy savings of up to 4 percent through O&M assessments planned for five additional facilities this year. If these efforts successfully improve contractor performance and reduce facility energy use, the program will continue next year.

SFPB, in cooperation with EPA's Architectural, Engineering, and Asset Management Branch, will also continue intermediate and long-term energy conservation projects that involve energy audits, recommissioning, mechanical system upgrades, and long-range mechanical systems master planning. A recent independent review of the energy conservation plan by EPA's Facilities Management and Services Division affirmed the principles, priorities, and strategies adopted by the Agency to conserve energy.

EPA Surpasses 2005 E.O. 13123 Energy Goal

Prior to EPAct 2005, energy efficiency requirements for EPA laboratories were outlined in E.O. 13123, *Greening the Government Through Efficient Energy Management*, issued in 1999. The order mandated a 20 percent decrease in energy intensity by FY 2005 compared to an FY 1990 baseline, but implementing guidance allowed federal agencies to subtract, or "net out," renewable energy purchases from their total energy consumption.

EPA consumed 357,864 British thermal units per gross square foot (Btus/GSF) in FY 1990, so the Agency's goal for FY 2005 was to reduce energy intensity to 286,291 Btus/GSF. By the end of FY 2005, EPA had gone well beyond the target by decreasing energy intensity by more than 40 percent. Although EPA surpassed the 2005 goal, it is important to note that the decrease in energy intensity was due almost entirely to the Agency's commitment to renewable energy. EPA's green power purchases offset 88 percent of its conventional electricity use—the highest percentage of any federal agency.

Without "netting out" green power purchased in FY 2005, EPA's energy intensity was 353,502 Btus/GSF, which is slightly less than the E.O. 13123 baseline of FY 1990 and well above the Agency's FY 2006 EPAct goal of 334,301 Btus/GSF. Later this year, the U.S. Department of Energy will release guidance for EPAct 2005 energy reporting that will determine whether or not federal agencies will be able to continue "netting out" green power. Regardless, EPA should show significant gains in actual energy conservation in FY 2006.

Help Reduce Energy Use

As EPA strives to meet its new energy efficiency goals, you can help the Agency reduce its energy use by:

- Turning off lights, computers, monitors, copy machines, and printers at the end of the day.
- Closing laboratory fume hoods at night.
- Wearing layers to adjust to small changes in indoor air temperatures (personal heaters are unsafe and not allowed).
- Minimizing the use of supplemental desk lights.

EPA Meets Federal EMS Goal

EPA rang in 2006 on a positive note by meeting the federal goal of establishing Environmental Management Systems (EMSs) for each of its 34 reporting locations by the December 31, 2005, deadline. The goal, set by Executive Order (E.O.) 13148, *Greening the Government Through Leadership in Environmental Management*, requires that all federal agencies identify appropriate facilities for EMS implementation based on the nature and scale of their operations, and then establish EMSs at these facilities to improve environmental performance.

An EMS is a set of practices and procedures that help organizations reduce their environmental impact and meet the commitments made in their environmental policies. EMSs include measurable environmental goals, objectives, and strategies that are reviewed and updated by individual facilities to achieve their respective goals. A key element of the system is its cyclical structure, which incorporates continuous planning, implementation, review, and improvement. As EMS objectives are achieved, higher objectives can be established to further improve facility performance.

To self-declare EMS implementation, each EPA reporting facility was required to meet 12 major Agency EMS milestones, including a thorough external review to verify that all elements have been included and fully implemented.

EPA's Environmental Science Center in Fort Meade, Maryland, established the Agency's first EMS in December 2002.

With new EMSs in place, each reporting location will now have a framework for reducing pollution and improving resource conservation, enhancing employee and public awareness of environmental issues, reducing costs, and enforcing compliance of existing policies.

The Environmental Science Center in Fort Meade, Maryland, led the way in EMS development when it became the first EPA facility to establish an EMS in December 2002. Fort Meade, along with the Region 3 and Region 9 offices, also received ISO 14001 certification for their EMSs. Though not required by EPA or E.O. 13148, ISO 14001 certification can serve as the external accreditation for a facility's EMS.

For more information about EPA's EMSs, visit <www.epa.gov/ems> or contact Russelle McCollough at (202) 564-1287 or <mccollough.russelle@epa.gov>.

Hydrogen Fuel Cell Vehicle

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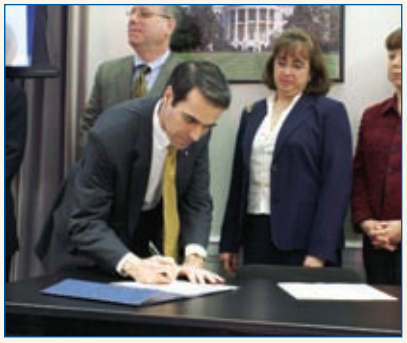
miles. In addition, the company is developing advanced hydrogen storage technologies, which will enable even greater driving range. GM's objective is to design fuel cell systems for automobiles by 2010 that have the performance, durability, and cost of today's internal combustion engines. GM's partner, Shell Hydrogen, took a major first step toward consumer-friendly fuel cell vehicle refueling in November 2004 when it brought hydrogen to a working retail gas station in Washington, D.C.—the first time this has been done in the United States.

EPA Signs MOU for High Performance and Sustainable Buildings

At the White House Summit on Federal Sustainable Buildings on January 24, 2006, EPA Assistant Administrator Luis A. Luna, along with representatives from 16 federal agencies, signed a Memorandum of Understanding (MOU) entitled "Federal Leadership in High Performance and Sustainable Buildings." By signing the MOU, these federal agencies commit to design, construct, and operate their facilities in an energy-efficient and sustainable manner.

EPA was already striving to meet the high standards set by the MOU requirements, but the new partnership solidifies the Agency's commitment to making sustainable buildings a priority. For more information about EPA's green building efforts, visit <www.epa.gov/greeningepa/projects/index.htm>.



EPA Assistant Administrator Luis A. Luna signs the federal MOU.

Sustainability Champions Honored

EPA recently gave Btu Buster Awards to 17 employees for sustainability accomplishments in fiscal year (FY) 2005. The Btu Busters, a collective term for the Agency's peer awards program, recognize EPA facility managers and building design and construction personnel for energy and water conservation efforts.

- EPA's Research Triangle Park (RTP), North Carolina, Energy Team—including **Greg Eades**, **Bill Gaines**, **Marshall Gray**, **Glen Lowery**, **Billy Morris**, **Sam Pagan**, **James White**, and **Robert Wippich**—received Btu Buster awards for extensive recommissioning efforts and mechanical upgrades at the RTP main consolidated laboratory and office complex. These efforts contributed to energy savings of nearly 7 percent—more than 33 billion British thermal units (Btus)—for the facility in FY 2005.
- **Bob Beane** from EPA's New England Regional Laboratory in Chelmsford, Massachusetts, received a Btu Buster award for adjustments made to the building's heating, ventilation, and air conditioning (HVAC) system that helped the laboratory reduce its energy consumption by more than 11 percent in FY 2005 compared to FY 2004.
- **Dave Burr** was awarded an H_2Overachiever award for installing an innovative rainwater reuse system that supplies the water needed to wash the boat fleet at EPA's Pacific Coastal Ecology Branch Laboratory in Newport, Oregon. The system helped reduce water consumption in FY 2005 by more than 100,000 gallons.
- **Dale Bates**, **John Begley**, and **Eugene Evans** from the Region 7 office and Science and Technology Center (STC) in Kansas City, Kansas, with the help of building engineers Brian Campbell and Seth Pickett from C.B. Rich Ellis, won H_2Overachiever awards for a condensate recovery project that will significantly reduce the amount of water needed for the STC's HVAC systems by reusing the excess water from steam condensation.
- **Dave Burr**, with the Western Ecology Division Laboratory in Corvallis, Oregon, and the Pacific Coastal Ecology Branch Laboratory in Newport, Oregon, received a Reporter of the Year award for accurate, timely reporting of energy and water use in FY 2005.
- **Adele Lucero** from the Region 8 laboratory in Golden, Colorado, won a Reporter of the Year award for providing timely and accurate energy and water use data each quarter.
- EPA's Region 5 Recycling Coordinator, **Rich Hoffman**, received the Pollution Prevention (P2) Performer of the Year award for introducing numerous waste reduction and recycling initiatives, including coordinating an innovative closed-loop recycling system for office paper, managing a recycling orientation program for new employees, and creating an eye-catching recycling area that maximizes the amount of recyclables collected.
- For dependable facility management and a demonstrated commitment to energy and water conservation, **Betty Kinney** from the Science and Ecosystem Support Division Laboratory in Athens, Georgia, received an Energy Partner of the Year award.
- **Jennifer Mann** won the Leading Edge Award for managing extensive mechanical upgrades at EPA's Region 9 laboratory in Richmond, California, which are expected to reduce the facility's energy demand by 21 percent. These upgrades included a natural gas-fired combined heat and power system that generates electricity and uses the excess heat to meet approximately 80 percent of the building's heating needs.

For more information, visit <www.epa.gov/greeningepa/champions/index.htm>.

Landscaping Upgrade at Colorado Laboratory to Save Water, Cut Costs

Plans to improve landscaping at EPA's Region 8 laboratory in Golden, Colorado, are projected to save more than 650,000 gallons of water per year, reducing the laboratory's overall water consumption by approximately 20 percent below fiscal year 2005 water use. The improvements—known as xeriscaping—will also save $1,600 to $1,900 per year over the life of the project.

Xeriscaping is a landscaping practice that uses designs and native plants suited to local conditions to reduce the need for irrigation, which reduces water use and cuts costs. A water conservation study at the Golden laboratory showed that irrigation consumed more water than any other lab activity. As a result, the laboratory's goal is to minimize or eliminate the amount of water used for landscaping, while maintaining existing trees.

The concept plan that EPA is considering for the new landscaping will convert approximately one acre of irrigated turf into a wildflower meadow or drought-tolerant perennial beds that require significantly less irrigation. The xeriscaping plan, completed in September 2005, is part of EPA's overall sustainability efforts under Executive Order 13148 and will also help the laboratory reach its Environmental Management System (EMS) goals, as well as the U.S. Green Building Council's Leadership in Energy and Environmental Design for Existing Buildings (LEED®-EB) goals.

EPA Celebrates 35th Anniversary and Unveils Portraits

EPA Headquarters celebrated the Agency's 35th anniversary through various events from January 17 to 19, 2006. To honor the 225 employees that have been with the Agency since its creation, EPA's Assistant Administrators held receptions for their staff in the Rachel Carson Green Room in Headquarters' Ariel Rios building. All living EPA Administrators, as well as the 35-year employees, were also honored with a color guard and video presentation during a ceremony at EPA's Mellon Auditorium.

During his commemorative address at the event, EPA Administrator Stephen Johnson praised the Agency's accomplishments by saying, "At 35, EPA is one of the newer kids on the block. Even so, the results we have delivered for the American people can stack up next to any of our federal partners. As we celebrate our anniversary throughout this year, EPA's birthday present to America is cleaner air, water, and land—we're fulfilling our obligation to leave the nation's environment healthier than when we found it."

EPA Administrators past and present were also on hand at a separate ceremony to unveil their portraits, which EPA employees will be able to view in Administrator's Hall, located on the third floor between the Ariel Rios North and South buildings at EPA Headquarters. All Deputy Administrators, Chiefs of Staff, Assistant Administrators, Regional Administrators, and Deputy Regional Administrators were also present for the event.

EPA Administrators past and present gathered at EPA Headquarters to commemorate the Agency's 35th anniversary. From left: Michael Leavitt, Carol Browner, Christine Todd Whitman, Stephen Johnson, Douglas Costle (seated), William Reilly, Russell Train, Lee Thomas, and William Ruckelshaus.

Through the Agency's network, EPA employees across the country were also able to view the celebration activities.

Throughout the year, EPA will continue to commemorate its history through various regional events, with some events planned to take place around Earth Day. EPA will celebrate Earth Day 2006 the week of April 17-21. Look for opportunities to participate in Earth Day activities at your facility.

For more information about EPA's anniversary and its history, visit <www.epa.gov/history>.

Enhancing Building Performance at EPA Headquarters

To evaluate its Federal Triangle Headquarters facilities, EPA initiated an assessment of critical building systems and operations. Dan Amon, the Agency's National Energy Manager, coordinated a joint effort between EPA and the General Services Administration (GSA) to determine the scope of the problems at the historic Washington, D.C., location. The assessment was completed in November 2005 and is the first step in a revitalization process designed to improve the facilities' performance, safety, and efficiency.

The multi-phase assessment of the EPA offices—which included Ariel Rios North and South and EPA East and West—covered mechanical, electrical, plumbing, and fire protection systems; operation and maintenance (O&M) requirements; and basic structural evaluations. The final report, a 400-page document, includes background information; evaluation results; and recommendations for improving energy and water efficiency, enhancing occupant comfort, and reducing utility costs.

An EPA/GSA implementation team will use this assessment report and its recommendations to develop a five-year plan that will include numerous building improvement projects with clearly identified costs, paybacks, and timelines. Once this process is complete, EPA and GSA will implement specific projects to further renovate and enhance the performance of EPA Headquarters facilities.

These efforts will ultimately improve the comfort of Federal Triangle employees, reduce the time spent addressing temperature concerns, and significantly reduce energy use. Based, in part, on the results of the O&M review, EPA has also initiated pilot O&M assessment projects at five large laboratories. EPA expects these assessments to help facility managers identify energy savings opportunities and improve the energy performance of their facilities.

EPA Reduces E-Waste Through READ Contracts

In its first year, the Recycling Electronics and Asset Disposition (READ) services program has enabled EPA to keep 350 pallets of electronic equipment—or approximately 350,000 pounds—out of the garbage. To date, 10 EPA facilities—including seven regional offices, two laboratories, and Headquarters—have signed on to participate in the program, which is making significant steps toward its goals of reducing the cost of recycling and increasing the amount of electronics recycled by federal agencies.

EPA created READ in 2004 as a procurement tool to assist federal agencies in properly managing electronic inventories and in recycling and disposing of excess or obsolete electronics through an environmentally responsible approach. Through READ, agencies are able to reduce electronic waste, which can release hazardous materials such as lead, mercury, chromium, cadmium, and beryllium into the environment. Administered under a government-wide acquisition contract, the READ program will also help EPA meet its Environmental Management System (EMS) objectives, as well as the requirements of Executive Order 13101. To date, EPA has awarded five-year contracts to eight small businesses to evaluate each piece of equipment and its components and then ensure the electronics are refurbished and resold, donated to charitable causes, recycled, or properly disposed of.

Following Hurricane Katrina, the READ program began actively working with the Federal Emergency Management Agency (FEMA) to collect and recycle damaged or obsolete electronic equipment in the New Orleans area. Since December 2005, at least one truckload of damaged electronic equipment—or 25,000 to 30,000 pounds of equipment—has been collected for recycling every day. READ-related efforts in New Orleans are expected to continue through spring 2006.

For more information about the READ services program, contact Oliver Voss at (202) 564-4514, or David Fuller at (202) 564-4767.

"Green" Your Dry Cleaning

Looking to get rid of that chemical smell on your dry-cleaned clothes? There's good reason to. EPA has warned that the commonly used chemical solvent perchloroethylene (frequently referred to as "perc") is a groundwater contaminant and could potentially cause headaches, cancer, or other human health hazards, especially for workers and neighbors of the dry cleaning facility. Unfortunately, of the more than 35,000 dry cleaning shops in the United States, 85 percent still use perc.

The good news is that non-toxic cleaning alternatives exist. Rather than having your clothes dry-cleaned, find a store that uses a more traditional wet cleaning method—an increasingly common option available in many laundromats. This method cleans your clothes using water, biodegradable soaps, and special machinery, yet still minimizes shrinkage and helps retain your garments' shape. Wet cleaning can even be used on some "Dry Clean Only" clothing; check with the store manager.

When you must dry-clean, some cleaners offer a more eco-friendly method using a silicone-based solvent that breaks down into sand, water, and carbon dioxide and doesn't leave a chemical odor. Another method—the hydrocarbon technique—is similar to conventional dry cleaning but is less toxic, easier on your clothes, and safer for the environment than perc.

Not only are these methods less detrimental to your health and the environment, but they also do not use heat, so your clothes will last longer and colors won't fade as rapidly. Call your dry cleaner today and see if they offer any of these or other environmentally friendly techniques!

For more information, as well as a list of professional cleaners offering non-toxic cleaning processes, visit <www.epa.gov/dfe/pubs/garment/gcrg/cleanguide.pdf>.

Events Not to Miss!

National Conference on Building Commissioning
April 19-21, 2006
San Francisco, California
For more information and to register, visit <www.peci.org/ncbc>.

Energy 2006: Empowering the Future
August 6-9, 2006
Chicago, Illinois
For more information, visit <www.energy2006.ee.doe.gov>.

Labs21 2006 Annual Conference
October 17-19, 2006
San Antonio, Texas
For more information on the conference, including a Call for Presenters application, visit <www.labs21century.gov>.

Contact Us

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