United States Environmental Protection Agency

EnergizingEPA

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

June 2006

On June 12, the 2006 White House Closing the Circle Awards were distributed at a White House ceremony. Among the 16 winners were the EPA Recycling Electronics and Asset Disposition (READ) Services Team; which developed a contract—available to all government agencies—to properly manage, recycle, and dispose of electronics and constituent parts; and three EPA Federal Electronics Challenge (FEC) teams—Headquarters, Region 2, and Region 4. EPA also received one of the 11 honorable mentions for its collaborative and innovative Agency-wide Environmental Management System (EMS). Selected from nearly 200 nominations in the areas of environmental management systems, pollution prevention, recycling, green product purchasing, alternative fuels, sustainable building, and electronics stewardship, the Closing the Circle Awards recognize outstanding achievements of federal employees and their facilities for significant contributions to environmental stewardship.

EPA Moves Into Arlington Facility, Which Showcases "Green" and Achieves Gold

After more than two years of intensive planning, design, and construction, EPA has begun occupying its newly leased sustainable office space in the Crystal City section of Arlington, Virginia. Due to the expiration of existing leases at three other Crystal City locations, EPA offices—including the Office of Pesticide Programs (OPP), portions of the Office of Solid Waste and Emergency Response (OSWER), and portions of the Office of Inspector General (OIG)—moved to their new "Potomac Yard" facility in summer 2006.

Comprised of two connecting towers containing 650,000 square feet of office space and 6,000 square feet of retail and public space, the new facility was developed by Crescent Resources. The U.S. General Services Administration (GSA) leased more than 400,000 gross square feet of the facility for EPA for 10 years.

Because the Potomac Yard facility was already designed when the Soliciation for Offers was issued, the developer faced challenges changing the speculative office building to meet EPA's minimum requirements—U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED®) Silver Certification, the ENERGY STAR® building label, and other environmental performance standards. After the lease was awarded, EPA, through GSA, was able to negotiate additional environmental performance upgrades to the facility, and the facility achieved LEED Gold Certification. Some of the facility's notable "green" features are described as follows:

To achieve the ENERGY STAR building label, Potomac Yard must perform in the top 25 percent of similar facilities. EPA required extensive commissioning and upgraded the mechanical system controls and ventilation monitoring systems after the lease was signed. The facility also features two ENERGY STAR-rated rooftops, which limit building cooling loads and could reduce peak cooling demand by 15 percent. The office areas feature natural daylighting, efficient ENERGY STAR lighting fixtures and appliances, automatic daylight dimming, and occupancy sensors.

Potomac Yard features recycled aluminum and wheatboard counter tops, recycled-content carpet, corn-based fabrics, and systems furniture that meets EPA's Comprehensive Procurement Guidelines for recycled content and is Green Guard certified. During construction, low-volatile organic compound interior adhesives, paints, caulks, and sealants were used to ensure superior indoor air quality.

EPA procured 4.2 million kilowatt hours (kWh) of renewable energy certificates (RECs)

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OMB Pushes for More Alternative Fuel Use

To help pave the way for greener highways, the Office of Management and Budget (OMB) has begun rating federal agencies' environmental performance, including the use of alternative fuel vehicles (AFVs; see details below right). To meet these challenging new federal requirements, EPA is increasing its acquisition of AFVs and cleaner fuels. A major barrier to these goals, however, is that many EPA employees don't even realize they are driving AFVs, and that there are opportunities nationwide to fuel those vehicles at AFV fueling stations near EPA laboratories and offices.

An alternative fuel vehicle sticker found inside the fuel lid

Approximately 34 percent of the Agency's fleet is already made up of AFVs, or vehicles that can operate on fuels other than gasoline or diesel, including electricity, natural gas, propane, hydrogen, biodiesel, and ethanol. Of the more than 400 EPA-owned/leased AFVs, 90 percent are "flex fuel vehicles" (FFVs), which can run on either gasoline or E85 fuel. E85 is composed of 85 percent ethanol, which is distilled from corn or other crops, and 15 percent gasoline. Instead of using two fuel tanks or requiring the driver to flip a switch, FFVs use the same tank and fueling system for both regular gasoline and E85. The energy content of E85 (and thus its fuel efficiency) is approximately 15 percent lower than gasoline, but this is usually offset by a corresponding lower price per gallon.

With FFVs distributed across the Agency, there is a good chance you might be driving one of these vehicles when you drive on Agency business. However, just as 70 percent of Americans driving AFVs don't realize it, many EPA employees are unaware that they can be filling up with cleaner fuel.

Determining whether your EPA vehicle is an FFV is as simple as a flip of the lid. Most FFV manufacturers place a sticker inside the fuel lid that identifies the vehicle as an FFV (see photo at left). Drivers can also identify an FFV by looking at the Vehicle Identification Number (VIN). The Web site found at <www.e85fuel.com/information/vin.php> will tell you whether your vehicle is E85-compatible based on the value of the eighth digit in the VIN.

If you are driving an FFV, an AFV fueling station might already be located near you. The U.S. Department of Energy's (DOE's) Clean Cities Campaign is dedicated to increasing the number and accessibility of AFV fueling stations, and many exist or will soon be installed near EPA locations. Visit DOE's AFV fueling station locator at <www.eere.doe.gov/afdc/infrastructure/locator.html> to determine if one of these stations is available near your facility. Make sure to check the Web site often; the number of locations will continue to expand as additional ethanol refining capacity is brought online.

Purchasing E85 is important to help EPA reduce its environmental footprint, whether you are driving an EPA, rental, or personal vehicle. E85 burns cleaner than gasoline, reduces air pollution, and is renewable, biodegradable, and produced domestically.

Fueling EPA vehicles with E85 will also help the Agency meet alternative fuel consumption and gasoline use reduction targets established under Executive Order 13149 and the Energy Policy Act of 2005. Recently, OMB began scoring federal agencies' performance in this area using a transportation "scorecard."

To meet these goals, it is important to accurately capture and report alternative fuel use. This is a challenge, because fuel retailers do not use a consistent product code to identify E85 when it is purchased at the pumps. GSA is working with credit card vendors and fuel retailers to address this problem, but in the meantime EPA must manual-

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Keeping Score on AFVs

Recently, OMB began rating the environmental performance of federal agencies using a "scorecard" system. The system is similar to that used to rate agency performance on financial, human capital, e-Gov, and other criteria under the President's Management Agenda. There are actually three environmental scorecards, one each for environmental stewardship, energy, and transportation. All metrics on the scorecard are graded using a color-coded system: green (success), yellow (mixed results), and red (unsatisfactory).

The transportation scorecard contains five distinct metrics, including the percent of new vehicle acquisitions that are AFVs, the use of alternative fuels in AFVs, and reduction in petroleum use. There are two administrative metrics, including approval by DOE of the Agency's strategy for meeting transportation goals, and incorporating the achievement of transportation goals into the position description and performance evaluation of the Senior Transportation Official and other employees.

OMB will be rating each agency on these metrics at year-end (in January 2007) and will also issue a mid-year progress evaluation each July. EPA's success against these metrics is dependent upon increasing the availability and use of alternative fuels such as E85, and accurately recording and reporting fuel purchase data.

H_2Overachievers Save Water With Condensate Recovery

Region 7 Facility Manager John Begley, Facility Director Dale Bates, and Safety Hygienist Gene Evans were recently awarded one of the two internal EPA H_2Overachiever Awards for their work in implementing a condensate recovery system to reduce water use and loss at EPA's Kansas City, Kansas, Science and Technology Center (STC). Initiated in June 2004 and completed May 3, 2006, the condensate recovery system has the capability to save more than 11,000 gallons of water every day or more than 1.5 million gallons per year, which could save the Agency nearly $12,000 in avoided water costs.

The system collects condensate from the facility's four air handling units (AHUs). The condensate forms on the cooling coils in the AHUs when the building's cooling system is operated, primarily during the summer months. Similar to the way moisture condenses from the air and drains down the side of a cold glass of water, moisture condenses from the air that passes over cold cooling coils in the AHUs. This condensate is captured and routed to a 10,000-gallon gray water tank located on the east end of the STC campus. The gray water is reused in the facility's cooling towers and low-flow toilets.

John Begley and Seth Pickett in front of Kansas City regional office.

With the new system in place, 4 to 8 gallons of water condensate per minute, depending on the outside air temperature and humidity, will be recovered and transported to the gray water holding tank for reuse. The system is most effective and collects the most condensate on hot, humid days, when there is a high demand on the building's cooling tower and the need to replace water evaporated from the cooling tower is greatest. This reduces the facility's need to use water supplied by the city. EPA expects that in a little less than three years the water recovery system will pay for itself. This innovative technology was also installed at EPA's Kansas City Region 7 office.

The condensate recovery system is the latest addition to the overall water recovery system at STC, developed with the help of building engineers Brian Campbell and Seth Pickett from C.B. Richard Ellis. The larger system has two other components that each direct water into the gray water holding tank—a rooftop rainwater recapture system that collects nearly 735,000 gallons of water each year, and a system to collect the water discharged as a byproduct of the reverse osmosis (R/O) system, which helps filter water for facility's laboratories and humidifiers. The 4 gallons of water released as a byproduct of the reverse osmosis system for each gallon processed are directed to the holding tank, further reducing STC's need to withdraw water from the city supply. The rooftop recovery system and gray water holding tank were both put in place when the facility was constructed in 2003; the system to collect excess R/O water was installed shortly thereafter.

Dale Bates, Gene Evans, and Brian Campbell in front of the Kansas City Science and Technology Center.

For more information on STC, contact John Begley at (913) 551-7597 or <begley.john@epa.gov>.

EPA Moves Into Arlington Facility

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supporting wind power generated in Nebraska, Minnesota, Oklahoma, and Wyoming, offsetting 100 percent of the emissions associated with Potomac Yard's annual electricity consumption.

Potomac Yard is located near numerous public transportation sources, including Metrobus, Metrorail, Ronald Reagan Washington National Airport, and commuter trains. Employees receive free access to Metrobus Route 9S Crystal City-Potomac Yard. In addition, the Agency will continue to provide its compressed natural gas shuttle bus service between Potomac Yard and Federal Triangle. Shower facilities and ample indoor bike parking are available for bicycle commuters.

Potomac Yard features water-efficient urinals in men's restrooms; water-conserving, dual-flush toilets in the women's restrooms; and high-efficiency showerheads and faucets with electronic shutoff. Regional and drought-resistant landscaping plants on facility grounds eliminate the need for extra watering or irrigation systems. The grounds also contain sand filters to treat stormwater runoff, and between the two towers of the facility, a small "green" roof helps minimize runoff.

For more information visit <www.epa.gov/greeningepa/facilities/hq-nova.htm> or contact Cathy Berlow <berlow.cathy@epa.gov> or (202) 564-3739.

Athens, GA, Facilities Set Master Plan for Sustainability

In an effort to achieve long-term sustainability at EPA's Office of Research and Development (ORD) and Science and Ecosystem Support Division (SESD) laboratories in Athens, Georgia, the Agency is incorporating numerous energy and water efficiency strategies into its long-range master planning process. In addition to addressing space needs and building conditions, the Athens Master Plan also addresses site sustainability, long-term energy efficiency issues, and physical security concerns, resulting in a holistic approach to campus planning.

EPA's ORD laboratory consists primarily of older buildings containing aging mechanical systems, which greatly decrease the overall efficiency of the laboratory. While the SESD laboratory operates relatively efficiently, both facilities stand to gain from planned measures. "The planned upgrades for the campus included in the Master Plan will result in energy savings between 10 and 15 percent," reports Abbas Keshavarz, a mechanical engineer with EPA's Sustainable Facilities Practices Branch.

Phase I of the Master Plan includes several initiatives. The first is the construction of an emergency generator for the ORD laboratory to provide critical power in the case of a power outage. The planned emergency generator will be powered with diesel fuel, but the possibility exists for the construction of a clean burning natural gas microturbine instead, should EPA receive funding. A U.S. Department of Energy (DOE) pilot program might provide funding for part of the microturbine project. The second initiative is the construction of a stormwater detention pond to improve ORD's stormwater management (the SESD laboratory currently possesses a stormwater detention pond). Finally, Phase I incorporates a campus-wide security upgrade, including the construction of a guard facility that serves the entire campus and a security barrier that incorporates architectural landscaping.

Phase II of the Master Plan calls for a more energy-efficient roof and the construction of a stand-alone power plant at the main ORD laboratory. The power plant will include all of the necessary mechanical equipment to effectively run the ORD laboratory, including chillers, boilers, and the new emergency generator. If the microturbine becomes a reality, however, the plant will not need boilers, because the microturbine can generate both heat and electricity.

Subsequent phases of the Master Plan call for the consolidation of laboratories and offices into fewer lab modules to create greater work and energy efficiencies. One of the effort's major goals is to fully upgrade all of the heating, ventilation, and air conditioning equipment at the ORD laboratory. Currently, the ORD mechanical equipment cannot maintain adequate cooling and dehumidification in the summer. This shortfall impacts the laboratory's ability to carry out its mission and results in decreased comfort levels for employees. The new power plant will add cooling capacity for the building, while replacing the current constant air volume system with a variable air volume system—which can adjust to meet building airflow requirements. This new system will reduce building cooling demand and result in a 10 to 15 percent reduction in energy use. Moreover, the Master Plan calls for all the existing fume hoods to be replaced with high-performance fume hoods, resulting in further efficiency gains.

With the long-term goal of achieving the U.S. Green Building Council's Leadership in Energy and Environmental Design® (LEED) Silver rating for existing buildings, the long-range Master Plan also includes the following sustainability measures:

- Replace existing single-glazed windows with a high-performance framing and glazing system.

The Science and Ecosystem Support Division (SESD) in Athens, Georgia.

- Replace existing parking areas with a permeable pavement system that can provide treatment of stormwater runoff.
- Incorporate bicycle storage and changing/shower facilities as part of the facility upgrades.
- Establish preferred parking spaces for carpool or vanpool vehicles capable of serving 5 percent of the facility's occupants.
- Utilize native plants and grasses for bio-filtration and soil stabilization.
- Utilize solar cells for security gate card access.

For more information on the Athens Sustainable Master Plan, contact Abbas Keshavarz at (202) 564-5075 or <keshavarz.abbas@epa.gov>.

Labs21 Conference Heads to the Heart of Texas

In San Antonio, Texas—a city known for both its rich cultural history and its pioneering vision for the future—more than 600 laboratory designers and engineers will come together for the Laboratories for the 21st Century (Labs21) 2006 Annual Conference. This one-of-a-kind event will be held October 17-19, 2006, at the Henry B. Gonzalez Convention Center. Bringing together industry leaders and professionals from around the globe, the conference will focus on the challenges and opportunities for laboratory sustainability for today and tomorrow.

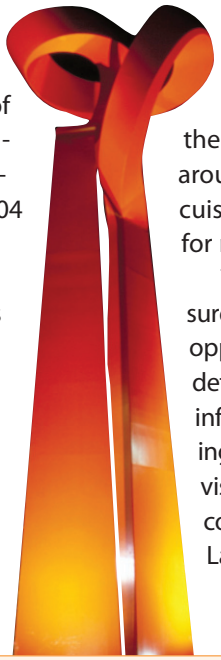
Conference attendees will have the opportunity to explore the latest in sustainable laboratory technology and design through informative technical sessions and engaging posters. The conference will also feature a Technology and Services Fair showcasing a wide variety of innovative products and services. Additional training opportunities will be held before and after the conference, including the Labs21 Introductory and Advanced Design Courses, symposia, and workshops. These timely and instructive sessions will cover a variety of topics ranging from hospital construction and renovation to facility operations and maintenance to cross-contamination and room pressurization.

Helping to ensure the continued success of the Labs21 conference and program, EPA and the U.S. Department of Energy (DOE) welcomed the International Institute for Sustainable Laboratories (I²SL) as the official co-sponsor for the Labs21 program and 2006 conference. Founded in 2004 by Phil Wirdzek, Kath Williams, and Beth Shearer, I²SL will aid Labs21, EPA, and DOE in promoting high performance, low-energy laboratories and related facilities.

"The International Institute for Sustainable Laboratories is proud to be a part of this program and conference," said Phil Wirdzek, I²SL's president. "Labs21 has significant foundation and potential, and we look forward to our role of ensuring its continued success and increasing its relevance in the U.S. market and around the world. We expect our role in this year's conference will broaden awareness for the program, advancing our mutual goal to improve the sustainability of our nation's laboratories and ensuring the scientific and economic strength they make possible."

Kicking off the 2006 conference, Juan Enriquez will deliver the keynote address at the opening plenary. As the founding director of Harvard Business School's Life Science Project and founder, chairman, and CEO of Biotechonomy, a life sciences research and investment firm, Enriquez is an international authority on the economic and political impacts of the life sciences. This best-selling author, scholar, and entrepreneur was also part of a 2004 world voyage that sampled microbial genomes, resulting in the discovery of thousands of new forms of life.

Concluding the conference, Kevin Hydes will deliver a talk during the closing plenary luncheon. Hydes, committed to improving building performance through green engineering and innovative design, currently serves as chair of the U.S. Green Building Council, sits on the Canadian Green Building Council, and is president and CEO of Keen Engineering.



Though the conference will be full of engaging and intensive learning opportunities, attendees wishing to venture outside of the conference center will not be disappointed. Labs21 will offer optional offsite evening tours, including a visit to the Southwest Foundation for Biomedical Research. The facility, one of the world's leading independent biomedical research institutions, boasts the only privately owned Biosafety Level 4 laboratory in the nation. For a more casual evening, attendees may sample a taste of Texas culture at the Knibbe Ranch, a working cattle ranch where a hayride under the stars, a real longhorn cow, tall tales around the campfire, and Texas-style cuisine will provide an excellent venue for networking and relaxation.

This year's Texas-sized conference is sure to be the best yet—don't miss your opportunity to participate! For more details on the conference, including information on registration and exhibiting in the Technology and Services Fair, visit <www.labs21century.gov/conf/upcoming/index.htm>, or e-mail Labs21 at <labs21@erg.com>.

DOE Assistant Secretary Eyes ESPCs

In April, Labs21 team members Dan Amon of EPA and Paul Mathew of the Lawrence Berkeley National Laboratory (LBNL) presented a talk focused on the Labs21 Program and energy savings performance contracts (ESPCs) to the Alliance to Save Energy. Among the attendees was Alexander "Andy" Karsner, the U.S. Department of Energy's (DOE's) new Assistant Secretary for Energy Efficiency and Renewable Energy (EERE), who expressed interest in working with Labs21 to incorporate more ESPCs in DOE labs.

As a result, Labs21 is working to develop a partnership with DOE's ESPC program and plans to have an ESPC roundtable at the Labs21 conference in October. For more information on ESPCs and how they work, visit <www.epa.gov/greeningepa/energy/espc.htm>.

Rhode Island Laboratory Saves Water, Money With Restroom Upgrades

The National Health and Environmental Effects Research Laboratory (NHEERL) Atlantic Ecology Division (AED) facility in Narragansett, Rhode Island, recently upgraded its sanitary fixtures, replacing nine existing urinals with new waterless urinals, and retrofitting 23 toilets with dual flushing mechanisms. The project saves an estimated 350,000 gallons of water per year, demonstrating a simple and efficient means to save water and money, while producing considerable environmental benefits.

Waterless urinals require no flushing, thereby eliminating the need for water. A cartridge located at the bottom of the urinal contains a liquid lighter than urine. Due to the density differences between urine and the cartridge liquid, the waste easily passes through the cartridge and out the waste drain. The cartridge seals the waste drain, which is plumbed as usual.

Dual flush toilets allow two different flush options for the toilet. Lifting the handle in one direction initiates a reduced flush (1.1 gallon per flush, or gpf) appropriate for liquid and paper waste, while pushing the handle in the opposite direction initiates a full flush (1.6 gpf), eliminating solid waste and paper.

The total cost of the project was roughly $3,800; each waterless urinal cost $300, and each dual flush retrofit cost $46. The upgrades, which began in early 2004 and were completed later that spring, resulted in a cost savings of roughly $760 per year, which translates to a five-year payback. Moreover, the facility has been able to garner additional savings because the waterless urinals require less maintenance and improve restroom sanitation. "The new waterless urinals have eliminated recurring problems such as stuck handles and clogged drains," said Facility Manager Russell Ahlgren.

To familiarize employees with the new fixtures, the facility staff posted placards with usage instructions and general information. Overall, employees at the AED laboratory have reacted positively to the new waterless urinals and dual flush toilets. Of particular note, the waterless urinals generate a number of positive comments among employees and visitors alike.

Alternative Fuel Use

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ly enter fuel purchase data into an online system. This requires cooperation from vehicle users, who are asked to carefully record the type of fuel purchased, amount paid, and odometer readings in their vehicle logs, and to turn in all fuel purchase receipts (and maintenance data). Through its efforts to ensure accurate fuel use reporting and increase alternative fuel purchases, EPA is striving to meet the OMB scorecard goal of purchasing alternative fuel for 51 percent of its total AFV fuel purchases by 2008.

As EPA employees begin fueling more often with E85, requesting AFVs while traveling, and purchasing AFVs for their personal use, the Agency will continue to reduce its environmental footprint and build market demand. This increased demand, along with industry expectations such as a 50 percent increase in ethanol production over the next few years, is fueling a greener future for the automotive industry.

For more information about EPA's green fleet, visit <www.epa.gov/greeningepa/greenfleet> or contact Gayle Rice at (202) 564-2085 or <rice.gayle@epa.gov>.

Events Not to Miss!

Energy 2006: Your Road Map to Energy Efficiency and a Brighter Future
August 6-9, 2006
Chicago, Illinois
For more information, visit <www.energy2006.net>.

Labs21 2006 Annual Conference
October 17-19, 2006
San Antonio, Texas
For more information on the conference, including how to register, visit <www.labs21century.gov>.

National Recycling Coalition Congress
October 22-26, 2006
Atlanta, Georgia
For more information, visit <www.recyclingconference.org>.

Brownfields 2006
November 13-15, 2006
Boston, Massachusetts
For more information, visit <www.brownfields2006.org>.

Contact Us

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