

Energizing EPA

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

December 2004



More Than a Drop in the Bucket

Through a Blanket Purchase Agreement (BPA) awarded last year, EPA has successfully helped leverage the office supply marketplace to make finding and buying recycled and environmentally preferable office supplies easier for its employees, as well as purchasers throughout the world. The BPA, a \$5 million per year office supply contract awarded to Corporate Express in October 2003, offers a one-stop online shop where EPA employees can buy non-electronic office supplies, such as recycled-content paper and remanufactured toner cartridges. As a result of EPA's BPA, Corporate Express now places identifying icons next to all of its catalog items that meet EPA's recycled-content guidelines and environmentally preferable purchasing criteria for its clients worldwide, influencing more than \$9 billion per year in office supply sales. Visit www.epasupplies.com to start shopping for green office products, or contact Karen Richardson at richardson.karen@epa.gov for more information.



EPA's Environmental Science Center (ESC) in Fort Meade, Maryland, has discovered how monitoring and reducing its water flow can positively impact its cash flow. Thanks to its comprehensive water management plan and a determined facility staff, ESC has realized a significant reduction in water consumption, along with cost savings that have gone directly back into the facility.

Since opening in April 1999, ESC's water use has been declining. In FY 2004, the facility used 22 percent less water compared to FY 2000 (the first full year of available data). Over the past four years, ESC has saved nearly 5.9 million gallons of water, the equivalent of approximately \$14,000 in avoided water costs (based on FY 2004 cost figures). This is no easy task for a facility that houses 75 laboratories and more than 150 personnel conducting tests on soil, air, and water to determine the presence of pollutants and other contaminants.

ESC developed a water management plan in 2002 to document and promote ways for the facility to better manage its water. Included in the plan were two projects to achieve additional reductions in water use: 1) reverse



By increasing the efficiency of its cooling tower, ESC has saved both water and money.



Staff at the Fort Meade, Maryland, laboratory use the new water tracking system.

osmosis monitoring and 2) cooling tower and boiler water control.

ESC occupies a 150,000-gross-square-foot building on 24 acres at the U.S. Army's Fort George G. Meade. Nearly one-fourth of the water consumed at ESC is related to the generation of de-ionized water (purified water) for laboratory use; therefore, ESC staff knew that if they took a closer look at the process they might be able to identify strategies to save water. In 2003, ESC's facility manager, Rick Dreisch, began carefully monitoring the de-ionized water consumption pattern and adjusting the operating schedule for reverse osmosis—one of the purification steps in the system—and was able to optimize the system. The adjustments resulted in significant savings of water that would have otherwise been rejected to the sewer. And because no upfront costs were involved, the cost savings went directly back into the facility.

Applying the same analytical approach to cooling tower management, Dreisch helped ESC reduce the quantity of cooling tower blowdown and total water use by carefully controlling cooling tower water chemistry and

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Green Power Explodes from Coast to Coast

On November 1, 2004, EPA entered into its largest green power contract to date, committing to purchase 100 million kilowatt hours (kWh) of renewable power in the form of renewable energy certificates (RECs) each year for its facilities in Research Triangle Park (RTP), North Carolina. The three-year purchase, procured through Unicoi Energy Services by the Defense Energy Support Center, will help support the annual generation of 100 million kWh of biomass energy derived from paper pulp waste in Port Wentworth, Georgia. This purchase will offset the use of non-renewable fuels to supply electricity use at RTP's Main Campus, National Computer Center, Human Studies Facility, National Health and Environmental Effects Research Laboratory, and all other RTP facilities. Green power purchases now represent 78 percent of EPA's annual electricity consumption.

Green Power Goes West

Also in November and early December 2004, EPA completed two separate, three-year green power contracts for five facilities in the western United States. In total, the purchases represent more than 17 million kWh of RECs and 100 percent of the electricity used in the Agency's offices in San Francisco, California; Denver, Colorado; and Kansas City, Kansas; as well as its laboratories in Golden, Colorado, and Kansas City, Kansas. The contracts, procured through

the Western Area Power Administration, bring the Agency total to 26 facilities purchasing green power for FY 2005.

"The addition of these five facilities, along with all of the facilities in RTP, exemplifies EPA's commitment to supporting green power and renewable energy development," said Bucky Green, chief of EPA's Sustainable Facilities Practices Branch. "Support from OARM's management team and our facility partners made this possible."

EPA's Region 7 office and its Science and Technology Center in Kansas City will receive 4.45 million kWh annually of RECs and 3.85 million kWh annually of RECs respectively, through September 2007, under a contract with Aquila, Inc. The purchase will help support the annual generation of 8.3 million kWh of wind power at the Gray County Wind Farm located outside of Montezuma, Kansas. The farm consists of 170 turbines that are capable of generating 110 Megawatts of electricity.

The Agency also contracted with Aquila to procure 4.7 million kWh of RECs for its Region 8 office in Denver and 2.1 million kWh of RECs for its laboratory in Golden from October 2004 to September 2007. The purchase will help the Colorado Green Wind Project generate 6.8 million kWh of wind power each year at its wind farm just outside of Lamar, Colorado. The farm, which consists of 108 turbines spanning 11,840 acres in Prowers County, has a genera-



Green power purchases at EPA facilities, including the RTP campus, represent 78 percent of the Agency's annual electricity consumption.

tion capacity of 162 Megawatts. While this is the first green power purchase for the Region 8 office, Golden's agreement represents a replacement contract for a previous commitment that ran from 2000 until 2003.

Finally, EPA is purchasing nearly 2.8 million kWh of RECs for its Region 9 office. The three-year contract with 3-Phases Energy will run until October 31, 2007, and will help support the generation of geothermal energy from The Geysers in Middletown, California. Located about 100 miles north of San Francisco in the Mayacamas Mountains, The Geysers consists of 19 geothermal plants with a generation capacity of 850 Megawatts. Its facilities harness the largest amount of geothermal power in North America.

For more information on EPA's green power purchases or RECs, contact Justin Spenillo at <spenillo.justin@epa.gov> or visit <www.epa.gov/greeningepa/greenpower.htm>.

More Than a Drop in the Bucket

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increasing water reuse cycles. EPA installed a new super-conductivity control system for the cooling tower and boiler feed water that allows staff to more precisely control the amount of chemicals being used for water treatment. This system also allows EPA to find large water or chemical losses quickly and electronically

log water usage, saving both water and money. Combined, this new control system and careful analysis and innovative thinking by the facility manager and staff resulted in optimization of water use.

"Whether it's cooling tower or something more specific to your facility—as is the case with the reverse osmosis—ESC

has demonstrated that taking the time to examine ways to manage water use can literally pay off," said Dan Amon of EPA's Sustainable Facilities Practices Branch.

For more information, visit <www.epa.gov/greeningepa/facilities/fortmeade.htm>.

Labs21 Conference: An Overarching Success!

St. Louis, Missouri, was abuzz in early October, celebrating the 100-year anniversary of the World's Fair, the Cardinals' baseball playoff run, the Lewis and Clark Expedition Bicentennial, and the Laboratories for the 21st Century (Labs21) 2004 Annual Conference. The nearly 520 registered conference participants—hailing from locations around the world, such as Australia, New Zealand, Mexico, Canada, Germany, and England—came to enjoy three informative days on sustainable laboratory design in the program's most successful event to date.

The conference, held October 5–7, kicked off with a recognition ceremony for the winners of the Labs21 Student Design Competition. The competition—sponsored by EPA and the U.S. Department of Energy, with support from Public Works and Government Services Canada, and administered by the Association of Collegiate Schools of Architecture—challenged students to design a laboratory for the 21st century in the urban context of Georgetown University in Washington, DC. The winning students also showcased their designs during the poster session and closing plenary, igniting discussions about their innovative plans throughout the conference. Douglas S. Kelbaugh, FAIA, dean and professor of Architecture and Urban Planning at the University of Michigan, presided over the ceremony and delivered the keynote address, highlighting the benefits of sustainable development in urban environments.

Technical presentations covering a wide range of laboratory-specific topics offered participants—laboratory designers, engineers, owners, and operators—a chance to investigate strategies for sustainable design. The conference also



David Lloyd, director of EPA's Facilities Management and Services Division, congratulates the Labs21 student design winners.

featured a poster session and a technology fair showcasing nearly 30 innovative laboratory technologies. Pre-conference events, such as bio-containment and cleanroom air system symposia and a variety of breakfast sessions, provided additional opportunities for participants to share ideas on the unique challenges faced by today's laboratory-intensive industries.

Outside the conference room, attendees toured some of the region's top sustainable research and development facilities, many of which were certified by the Leadership in Energy and Environmental Design (LEED™) green building rating system, a voluntary, consensus-based national standard for developing high-performance, sustainable buildings. At the Nidus Center for Scientific Enterprise, the first laboratory to receive LEED™ certification, tour guides highlighted the center's use of energy recovery, as well as myriad other sustainable design features. Participants also attended a reception and tour of the Donald Danforth Plant Science Center, a state-of-the-art plant research facility. The next evening, attendees toured the sustainable elements of Washington University's LEED™ Certified Earth and Planetary Sciences Building and enjoyed a reception at nearby Whitaker Hall.

Not only did the Labs21 conference highlight sustainability, it once again illustrated a commitment to energy efficiency by purchasing green power. To help offset the hotel energy use related to conference activities, EPA purchased 53,000 kilowatt hours of wind energy from the Mendota Hills Wind Farm in Illinois.

Plans are already underway for the 2005 conference scheduled for October 18–20, in Portland, Oregon. The conference will be held at the Oregon Convention Center, well known for its award-winning sustainable building features. For more information on the conference and the Labs21 program, visit www.labs21century.gov.

Change a Little, Save a Watt

- Replace burned out light bulbs with compact fluorescent bulbs to save energy and cut pollution.
- Use your desktop lamp instead of overhead lights to reduce unnecessary lighting and cut heating loads.
- Use the printer for three copies or less; for more, use the copier.
- Use inkjet printers instead of laser printers, which require 30 times more power and offer similar quality.
- Use the "stand-by" button on your copier to lighten the machine's energy load by 70 percent.
- Enable the ENERGY STAR® power management feature on your computer monitor; for more information, visit www.energystar.gov.
- Burn calories, not hydrocarbons: Ride your bike to work!
- Hold a teleconference. Airplanes use 70 gallons of fuel per minute.

Source: DOE's You Have the Power Program
www.eere.energy.gov/femp/yhttp/tips.html.

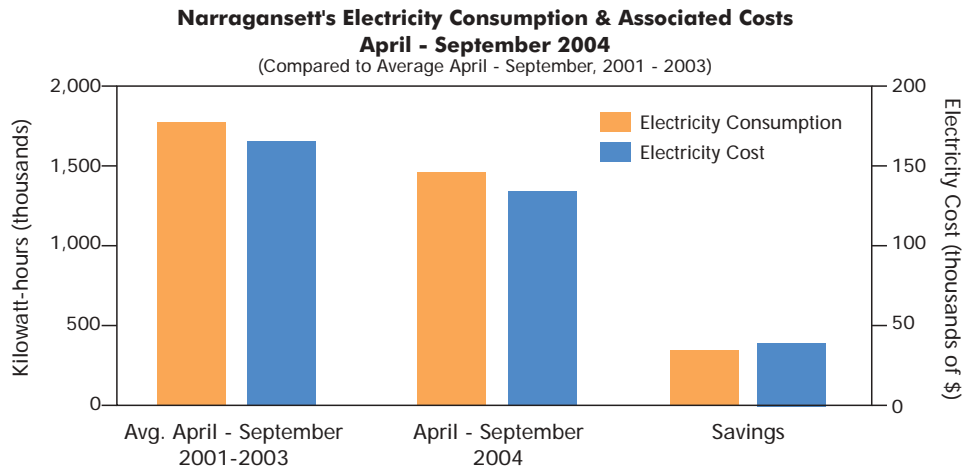
Earth Day 35th Anniversary:
 April 22, 2005



Narragansett Lab Upgrades Net Significant Savings

Recently completed mechanical upgrades of the chilled water system at EPA's Atlantic Ecology Division Laboratory in Narragansett, Rhode Island, have already saved more electricity and associated utility costs than originally anticipated. Using innovative design to optimize the existing chillers' performance, the lab has seen significant increases in energy efficiency, translating into substantial cost savings.

During the hot summer months in the Ocean State, the Narragansett laboratory runs its chillers to ensure employee comfort and support its daily aquatic research on coastal waters and marine life. During the cooler spring and fall seasons, however, the lab's chiller demand is substantially reduced. To more efficiently respond to the lower energy demands associated with spring and fall, EPA reintegrated a smaller, existing 50-ton air-cooled chiller into the primary chilled water loop. This integration allows the smaller chiller alone to provide the necessary chilled water dur-



ing cooler months, using considerably less energy than the larger primary chiller loop at reduced output. Energy savings have also been achieved through the addition of variable frequency drives and new pumps and control valves. New distributed digital controls further minimize pump energy by intelligently matching pump output with the current cooling load.

EPA now expects to save more than \$56,000 annually in electric utility

costs—far surpassing its initial expectations of \$26,000 per year. From April through September 2004, the laboratory had already reduced its electricity consumption by more than 20 percent, netting savings of more than \$32,000 in electric utility costs when compared to the same time period averaged over the previous three years. Based on EPA's initially anticipated annual electric utility savings, the projected payback period was approximately eight to 10 years. Because the optimized chilled water system is performing more effectively than anticipated, though, EPA now expects to cut the payback period in half.

To learn more about these upgrades and the Atlantic Ecology Division Laboratory, visit <www.epa.gov/greeningepa/facilities/narragansett.htm>.

Gulf Breeze Weathers the Storm

On September 16, 2004, EPA's Gulf Ecology Division Laboratory in Gulf Breeze, Florida, was hit by the intense wind, rain, and storm surge resulting from Hurricane Ivan. Many of the lab facilities suffered roof damage, and the strong storm surge resulted in flooding of up to 10 inches in certain buildings. The laboratory's

location protected it from the brunt of the Gulf of Mexico's wave action, but parts of the facility's piers were washed away by the storm. As a result, the laboratory's photovoltaic pier lighting system is no longer operational. After extensive clean-up efforts, power and water were restored to the facility in mid-October.



Contact Us

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