



Greening EPA

A Look at Agencywide Environmental Progress **Issue Two**

Welcome!

This issue of *Greening EPA* brings you a wealth of information on what many EPA facilities are doing to help protect the environment. From Edison, New Jersey, to Richmond, California, EPA laboratories and offices are striving to become models of environmental sustainability. This issue also provides you with a succinct overview of Executive Order 13101 and what it means to EPA facility managers and employees. I hope you find this issue both informative and useful.

—Phil Wirdzek, FMSD

A Major Milestone for Buying Green

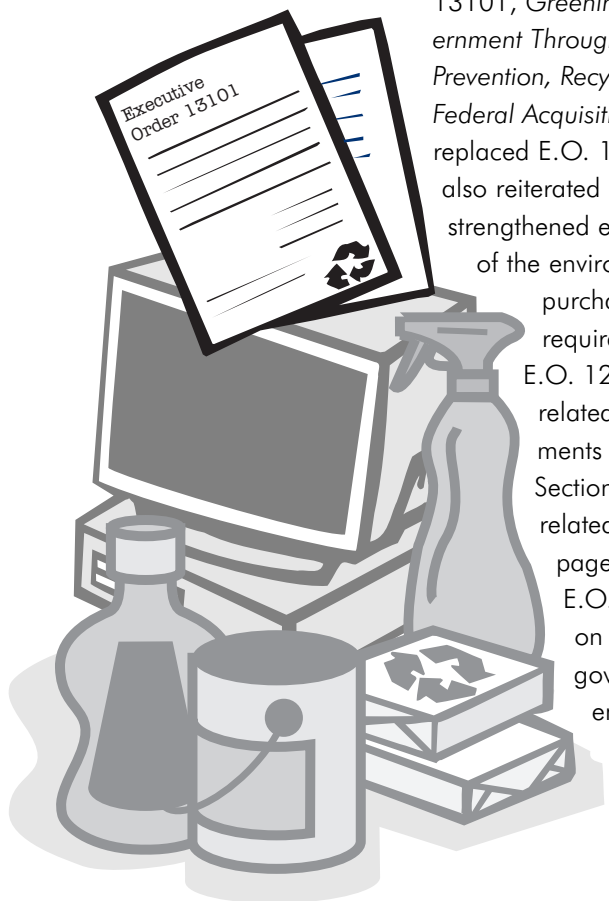
On September 16, 1998, President Clinton issued Executive Order (E.O.) 13101, *Greening the Government Through Waste Prevention, Recycling, and Federal Acquisition*. It replaced E.O. 12873, but also reiterated and strengthened enforcement of the environmental purchasing requirements of E.O. 12873 and the related requirements in RCRA Section 6002 (see related story on page 3). Overall, E.O. 13101 calls on all federal government employees, including

those working in EPA's offices and labs, to use the buying power of the federal government to advance pollution prevention.

E.O. 13101 offers a variety of provisions related to environmentally preferable purchasing. The order, for example, requires EPA to complete its draft guidance for purchasing environmentally preferable products. This guidance, originally proposed in September 1995, established seven guiding principles to help agencies identify and purchase environmentally preferable products and services.

As part of this process, E.O. 13101 encourages federal agencies to work on pilot projects that test and

evaluate their environmental purchasing principles. Agencies are encouraged to try different techniques including working with non-governmental labeling or certification experts or with standards developing organizations such as the National Institute of Standards and Technology. To date, federal agencies have conducted pilot projects regarding the purchase of environmentally preferable cleaning products, computers, and building materials. EPA, in turn, will develop a database of information from these pilot projects to help consolidate and promote success stories. In addition, agencies also must modify their existing





“Walking the Talk” in Region 8

Thanks to a dedicated group of eight employees, Region 8 is emerging as a strong leader in the greening EPA movement. With a flurry of activity on a variety of fronts, the Green Team, as the group calls itself, is working hard to ensure pollution prevention is an EPA practice and not just a philosophy.

Founded informally in 1994, the team includes participants from the facility management, purchasing, pollution prevention, ecosystem protection, and environmentally preferable purchasing offices. Although it was originally founded to energize the region’s internal recycling program, the team has expanded to embrace a variety of pollution prevention efforts.

The Green Team, for example, distributed a list of the top 10 ways to “go green” at EPA (see sidebar). The team learned, however, that many EPA employees were already familiar with the recommendations on the list. “We found that everyone knew what the right thing to do is,” reported Diane Thiel, a Region 8 Green Team member. “They just weren’t sure how to go about doing it. The team’s goal now is to make doing the right thing easier for people.”

To make “doing the right thing” easier, the group

expanded upon its top 10 list and prepared five tip sheets with detailed information on:

- Greening meetings, presentations, conferences, and social events.
- Going green at the computer, photocopier, fax, printer, and in the mail room.
- Using green transportation (including telecommuting).
- Supporting the office recycling program.
- Purchasing environmentally friendly products.

The tip sheets include practical information such as directions for using copiers, printers, and fax machines properly to minimize paper waste; instructions detailing how to cancel an errant print job; lists of materials that can and cannot be collected as part of the office recycling program; directions showing how to send group voice mails to avoid the need to distribute flyers; information on where to place excess materials such as paper clips, folders, and three-ring binders for reuse; and a phone number for the “Ride Arrangers” to make it easier to establish car pools or arrange alternative transportation.

“We found lots of small ways to make big improvements,” explained Whitney Trulove-Cranor, another

Green Team member. “For example, some people did not know how to use WordPerfect’s duplex feature with our printers. Others used the ‘trial and error’ method at the photocopiers to get good quality copies. Once we showed people how to use the equipment efficiently, paper usage dropped.”

The team’s efforts are not limited to information distribution. The Green Team also took an active role in reducing the number of phone books used in the region’s headquarters. The phone company used to deliver several hundred phone books to serve the 1,000-person

office. By encouraging each office to store the phone books in central locations, the team reduced the number of phone books from 600 to 150. Team members also are showing people how to access the phone directory via the Internet to further reduce the number of phone books needed.

For copies of the Region 8 tip sheets or additional information on other Green Team activities, contact Whitney Trulove-Cranor at <trulove-cranor.whitney@epa.gov> or 303 312-6099, or Diane Thiel at <thiel.diane@epa.gov> or 303 312-6389.

Top Ten Ways to Go Green

1. Always make double-sided copies.
2. Print rough drafts on the blank side of used paper.
3. Fax from your computer (or use post it notes as your cover sheet) to save paper.
4. E-mail documents as attachments and edit on screen.
5. Car pool, bike, walk, or ride the bus to work.
6. Share publication subscriptions and remove your name from unwanted mailing lists.
7. Teleconference when possible to avoid traveling to meetings (even local ones).
8. Patronize businesses that promote reuse and recycling.
9. Distribute presentations electronically via e-mail, CD-ROM, diskette, or a Web site.
10. Buy environmentally preferable products maximizing the following attributes:
 - Made from postconsumer recycled-content materials
 - Are reusable and recyclable
 - Minimize packaging
 - Are energy-efficient
 - Conserve water



A Major Milestone *continued*

procurement programs to increase the purchase of environmentally preferable products and services.

Agencies also are encouraged to purchase bio-based products. A bio-based product is "a commercial or industrial product, other than food or feed, which utilizes biological products or renewable domestic agricultural (plant, animal, and marine) or forestry materials." Examples include vegetable-oil based solvents that serve as effective metal degreasers; vegetable oil-based formulations for gear oils, transmission fluids, and hydraulic fluids; and high-strength building materials made from agricultural waste for architectural applications such as cabinetry.

Finally, the E.O. also strengthens efforts to buy recycled-content products. Beginning December 31, 1998, for example, all government offices are required to purchase at least 30 percent postconsumer fiber for specified printing and writing papers. If 30 percent paper is not available, does not meet performance requirements, or is not available at a reasonable price, agencies must purchase paper with at least 20 percent postconsumer content. Further, the E.O. reinforces EPA's Comprehensive Procurement Guidelines (CPG) program. The CPG program designates recycled-content products for purchase by federal agencies and recommends

Compliance Inspection Changes

As a result of Executive Order 13101, federal facility compliance inspections—RCRA Federal Facility Compliance Act and EPA multimedia inspections—will include each facility's compliance with federal environmental purchasing requirements. The new E.O. also directs EPA to encourage states authorized to carry out federal facility RCRA inspections to implement the new guidance. Agencies will report annually to the Office of the Federal Environmental Executive on the results of the inspections. EPA is currently preparing guidance to assist in the compliance inspections.

recycled-content levels for those products. Federal agencies purchasing CPG-designated items are required to purchase them with recycled content.

For more information on E.O. 13101, contact Ron McHugh, assistant to EPA's Agency Environmental Executive, at 202 260-9150.

New Leadership at OARM

Romulo Diaz, nominated by President Clinton, took his place as the Assistant Administrator for the Office of Administration and Resources Management (OARM) in October 1998. Before taking the helm at OARM, Diaz served as the director of DOE's Office of Regulatory Coordination, the DOE Deputy Assistant Secretary

for International Affairs, and the Deputy Chief of Staff and Counselor to former Energy Secretary Hazel R. O'Leary. He received undergraduate and law degrees in his native state of Texas and studied at Harvard University's Kennedy School of Government.

Highlights from his 25-year career include negotiating the international contingency response to the Gulf Crisis

(1990 to 1991) and representing the Federal Energy Regulatory Commission on important energy legislation such as the DOE Organization Act and the Natural Gas Act of 1978. With his extensive background in public service, spanning work with regulatory reforms, international outreach efforts, and internal operations and management

issues, Diaz is bringing lots of new ideas and high expectations to his new position at EPA.

In his new role as Assistant Administrator, Diaz will oversee EPA's human resources, contracts, and grants programs and manage the Agency's numerous facilities. He also is expected to take a leading role in the Agency's efforts to "green" itself.

Greening the Heartland in Region 7

In June 1999, EPA plans to formally open its new Region 7 office building in downtown Kansas City, Kansas. With its wide range of environmental features—from energy-efficient windows and lighting to an advanced water management system—the approximately 217,500-square foot facility moves the region one step closer to building “green.” Built at a projected construction cost of \$32 million, the five-story facility was designed to house roughly 900 EPA regional employees, with 750 scheduled to move in initially.

“Given the regulatory requirements and the availability of green products in 1995, when the Solicitation For Offers was published, our design team and the developer did an outstanding job in design and construction of the facility,” said Marc Matthews of EPA’s Region 7. “With the widespread availability of recycled-content and other environmental building products today, we hope other facilities can go even further and build upon our success.”

EPA regional staff worked with the developer to create an environmentally sustainable design. Specifically, in completing the project, they established several overarching goals:

- To create an aesthetically pleasing design that blends with the natural environment.
- To reduce disturbance to site conditions and surroundings.
- To accommodate natural light.
- To emphasize EPA’s overall mission of environmental enhancement and sustainability.

The resulting building offers a range of environmental features in the areas of energy efficiency, recycling, landscaping, water conservation and erosion control, and air quality, as detailed below.

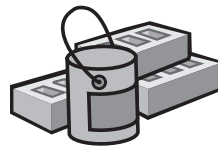


ENERGY EFFICIENCY

In an effort to reduce energy consumption, the building was designed to qualify as an EPA Energy Star facility. As a result, the building uses indirect lighting as the primary source of light in the open office areas in the building. All public areas use motion sensors to detect movement and regulate general lighting, while compact fluorescent task lighting is used for individual cubicles to avoid wasteful overhead lighting grids. In addition, T-8 fluorescent bulbs with

electronic ballasts provide energy-saving benefits. Throughout the building, low emittance (low-e) windows are recessed 2 feet to increase the shading coefficient, and light shelves carry natural light deep inside the building.

The building also uses an energy management system to monitor temperatures and keep them at optimum levels. Additionally, a central air handling system provides cooling for the building; its two rotary screw chillers use an environmentally friendly refrigerant (HFC-134a) as the heat transfer agent.



RECOVERED MATERIALS AND RECYCLING

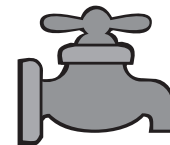
Recycled-content carpeting, ceiling tiles, ceramic floors, and paint are used throughout the building. The auger piles, footings, and foundations were constructed with concrete containing 1,000 tons of coal fly ash, complying with EPA’s Comprehensive Procurement Guidelines requirements. In addition, the entire building was designed to make recycling easy for its occupants. Recyclables are stored and consolidated on each floor in rooms next to the freight elevators, allowing for a quick and smooth delivery to the loading dock. These

rooms also provide storage space for reusable office equipment and materials.



LANDSCAPING

Both inside and out, the building’s landscaping is truly “green.” Inside, designers planted 12 Ficus trees to help remove indoor air pollutants. On the outside, native plants and vegetation, including between 30 to 40 Honey Locust trees, make up most of the landscaping. Adopting a xeriscaping landscaping approach, these plants require less water than imported plants and also require little maintenance, reducing use of and exposure to harmful pesticides. Shrub beds located throughout the site add visual appeal while aiding in erosion control.



WATER CONSERVATION AND EROSION CONTROL

The building also offers water conservation and erosion control systems. Plumbing fixtures in the building, for example, include water-saving urinals, flushometer toilet adapters, and low-flow shower heads in the fitness center. An advanced water management controller operates the



building's irrigation system valves. This allows for a wide variety of water conservation measures such as water budgeting and programmable rain delay. As part of this system, probes measure the moisture content of the soil outside the building to ensure that vegetation is only watered when necessary. In order to improve the quality of water runoff, the designers installed sand oil interceptors in the parking lot drains to screen out contaminants.



AIR QUALITY

Associated with this project, the city of Kansas City, Kansas, is constructing a half mile bike path adjacent to the new EPA building. This path, along with the installation of bike racks and showers at the facility, provides employees with an alternative to driving to work. In addition, parking spaces are reserved for employees who carpool. Also, Region 7 is

continuing its transit subsidy program, which compensates employees for using public transportation.



NEXT STEPS

With the building almost completed, regional staff are now turning their attention toward a new environmental laboratory. "We are partnering with the General Services Administration, lab personnel, and others to ensure that the new lab is as green as possible," added Matthews. "We'll be able to take what we've learned from the office building and go one step further." Once completed, the lab will be located across the street and within walking distance from the new office building.

For more information on the innovative new office building or laboratory, contact Marc Matthews of EPA Region 7 at 913 551-7517 or Bucky Green of EPA Headquarters at 202 260-6371.

Spreading the Word on Sustainable Design

With each tree stand preserved and piece of construction debris recycled, EPA's Research Triangle Park (RTP) facility in North Carolina is setting a positive example. Pharmaceutical company Glaxo Wellcome, located nearby, has taken notice. As a result, the company invited EPA RTP Project Engineer Pete Schubert to give a presentation on sustainable site design at a session organized by the company. Glaxo Wellcome is interested in incorporating sustainable design and construction into its future building projects.

At the site design session, Schubert explained some issues the company might consider when designing facilities that minimally affect the surrounding environment. He discussed specific issues he has dealt with, such as road width, preservation of existing trees and vegetation, and water quality concerns for surrounding ponds and lakes during construction. Schubert also discussed how EPA is recycling a large portion of its construction waste.

"EPA has been a real leader with this project," said Robert Nash, a session attendee and organizer from Glaxo Wellcome. "The information EPA provided on markets and networks for recycling construction waste will be very beneficial to us in any future construction projects."

For an update on the construction status of the RTP campus, visit www.epa.gov/rtp/new-bldg/status/status.htm.



Taking Charge of Environmental Purchasing

Government purchase cards (aka "smart pay" cards) make purchasing easier, but they come with a great deal of responsibility including the obligation to buy environmentally friendly products. To make environmental purchasing easier, the Office of

Acquisition Management (OAM) consolidated EPA's environmental purchasing strategies into its *EPA Guideline for Use of the U.S. Government Purchase Card* document. Originally produced in 1987, the document is regularly updated to incorporate changes in pur-

chasing policy. The most recent update, dated December 1, 1998, describes the environmental mandates affecting all federal government purchases, including "smart pay" card purchases.

In addition to publishing the updated guidelines, OAM also is beginning a series of

training courses to ensure that all EPA employees are familiar with the most recent environmental purchasing requirements.

For a copy of the document or for additional information, please call Alan Ritter of OAM at 202 564-4396.



Edison, New Jersey—A New Light in Energy Conservation

Helping to secure a sunny future for EPA and the world's energy resources, three new solar water heaters are in operation at EPA's Edison, New Jersey, lab. The solar technology was installed in December 1998 through a partnership between EPA's Office of Administration and DOE's National Renewable Energies Laboratory (NREL). The solar heaters, now the primary source of hot water for the three facility areas, rely on the existing electrical hot water system for auxiliary heating only when necessary. A typical solar heating system reduces the need for conventional water heating by about 66 percent, minimizing the consumption of electricity or fossil fuel and the environmental impacts associated with their use.

All three solar heating systems consist of a preheat tank (between 66 and 120 gallons) and a number of roof-mounted, single-glazed, liquid-evacuated tube collectors. Although known for efficiency, this particular technology also was chosen for its structural advantages. As Jeff Dominick, a senior project manager in NREL's Federal Energy Management Program Group, explains, "To install the tube collectors, the

Edison facility's flat roof didn't have to be penetrated or significantly altered, saving time and money."

In two of the three new systems, installers were able to situate the solar preheat tanks above the existing electric water heaters, allowing a continuous transfer of hot water through a thermosiphon arrangement. This positioning was not possible in the third lab area due to space constraints. Regardless, this system is the largest of the three, consisting of a 120-gallon preheat tank and 90 evacuated tube collectors. It also houses a British thermal unit (Btu) meter in its collector loop, which will help measure how well Edison's new solar technology performs.

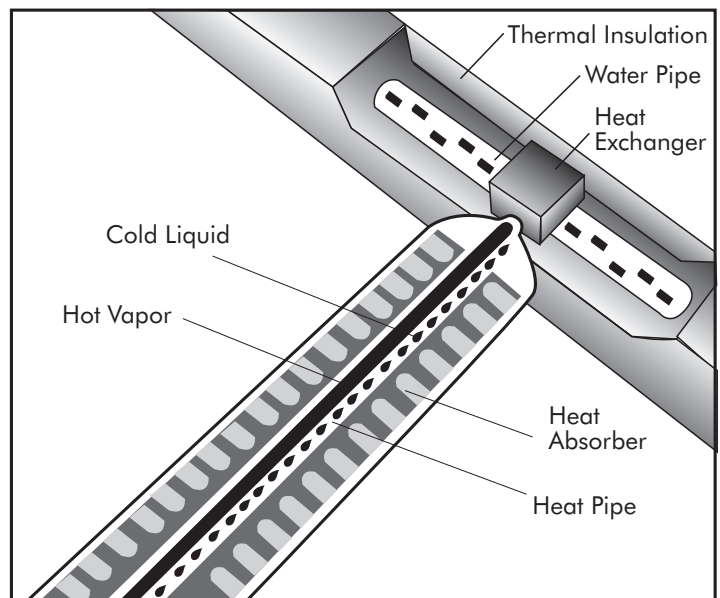
For a 2-week period in December, readings from the Btu meter were expected to reach 700,000 Btu. The actual results, however, came in at 1,183,000 Btu, 69 percent higher than anticipated. While these results could be due to unseasonable amounts of sunshine, they also could indicate that Edison's new solar heaters will exceed anticipated performance and energy saving abilities.

The Edison lab's solar heating project is already an

important success for the Agency's renewable resource efforts. According to Richard Parish, a senior project leader in NREL's Federal Energy Management Program Group, "These kinds of projects are a valuable way for EPA to demonstrate the latest renewable energy technologies and prove their viability in real-world situations. Through efforts like the Edison project, EPA has become a role model for other federal facilities, leading the way by demonstrating its commitment to ensuring a sustainable energy future."

For more information on the solar hot water project at EPA's Edison lab, contact John Beier at 732 321-4382.

EPA used evacuated tube collectors like the one illustrated below. These solar collectors consist of a heat pipe inside a vacuum sealed tube. Each tube contains a sealed copper pipe (heat pipe). The pipe is then attached to a black copper fin that fills the tube (absorber plate). Protruding from the top of each tube is a metal tip attached to the sealed pipe (condenser). As the sun shines on the black surface of the fin, the alcohol is heated and hot vapor rises to the top of the pipe. Water then flows through the heat exchangers picking up the heat from the tubes. The heated liquid circulates through another heat exchanger and gives off its heat to water that is stored in a solar storage tank.





Renewable Energy Assessment Leads to Photovoltaic Lighting at Gulf Breeze Facility

Taking full advantage of Florida's sunny skies, EPA's Gulf Ecology Division of National Health and Environmental Effects Research Laboratory in Gulf Breeze is using photovoltaic power to light two of its four piers. This new 600 W photovoltaic system will save the facility 900 kWh of electricity per year.

The photovoltaic project was recommended in a renewable energy assessment of the entire Gulf Breeze facility. The report, *Renewable Energy Opportunity Assessment*, is the result of a partnership between EPA and DOE in which FMSD provided funding for NREL staff to visit the facility and write up their findings.

When NREL staff visited the piers, two were being lit by electric-powered flood lights, while the other two

piers were not lit at all. NREL staff recommended the facility use remote photovoltaic generation to light the two dark piers. This would promote renewable energy products and serve as a reliable application for a photovoltaic demonstration project.

In July 1998, facility personnel decided to construct the photovoltaic array. This decision was due not only to the power quality the photovoltaic system offered, but also the avoided \$4,000 cost of running line extensions to the two formerly unlit piers and the \$81 per year the facility will save in electricity costs. As an added benefit, photovoltaic lights have withstood natural disasters on the scale of Hurricane Andrew, which devastated the Miami region in 1992.

In addition to recommending the photovoltaic

light system for the piers, the *Renewable Energy Opportunity Assessment* described cost-effective renewable energy opportunities at the Gulf Breeze facility as a whole and at each building on the compound. Resources and technologies assessed in the document include biomass, wind, photovoltaics, daylighting, hydroelectric, ground-source heat pumps, solar ventilation preheating, solar space heating, solar cooling, and solar water heating.

The Gulf Breeze facility consists of historic buildings and several small trailers that are poorly insulated and have old, inefficient mechanical systems. Since many of the trailers are near the end of their design life, NREL recommended EPA consolidate them into a new building with state-of-the-art central systems, daylighting, heating,

cooling, and digital control systems. This would most likely be the next recommended project undertaken by the facility.

For more information on the installation of the photovoltaic lights or the assessment, contact Andy Walker of NREL at 303 384-7531 or Clay Peacher of the Gulf Breeze facility at 850 934-9239.

Photovoltaic (or PV) systems convert light energy into electricity. Most commonly known as "solar cells," PV systems can provide electricity for pumping water, powering communications equipment, and lighting buildings. In a surprising number of cases, PV power is the cheapest form of electricity for performing these tasks.

Region 9 Seeks Green Power

EPA's Richmond, California, laboratory might soon be powered by solar, wind, geothermal, landfill gas, or other environmentally friendly energy sources. Recent deregulation of the California electric industry has made it possible to buy energy from renewable sources rather than traditional

ones. On February 17, 1999, GSA and EPA Region 9 released a request for proposal seeking bids to provide 100 percent green power for the Richmond facility.

The Agency worked closely with GSA to define its green power requirements. EPA's definition is similar to the definition used by

California. EPA's definition, however, excludes power generated from municipal solid waste or scrap tires because of unresolved emissions concerns.

If all goes well, the Richmond facility will be purchasing 1.7 million kWh of green power annually for the 3-year duration of the con-

tract. A copy of the solicitation is available at www.gsa.gov/pbs/xu/co1.htm. Check future issues of *Greening EPA* for updates. For additional information, contact Chandra Shah of NREL at 303 384-7557 or chandra_shah@nrel.gov.



Events Calendar

The National Town Meeting for a Sustainable America

Where: Detroit, Michigan
When: May 2 to 5, 1999
Contact: 888 333-6878 or <www.sustainableamerica.org>

This meeting will showcase best practices that promote sustainability around the country. The program will emphasize building individual and institutional capacity so that best practices can be replicated.

National Marketplace for the Environment West

Where: Anaheim, California
When: May 3 to 5, 1999
Contact: 800 334-3976

Seminars will provide information on environmental technologies, programs, products, markets, public/private partnerships, standards and certification, and case studies on energy efficiency and environmental procurement success stories.

FEDfacilities

Where: Washington, DC
When: May 4 to 5, 1999
Contact: Joseph Zuccerella, 203 840-5609

FEDfacilities is designed specifically for individuals who are responsible for the management of both military and civilian government buildings and facilities.

84th Annual International Purchasing Conference and Educational Exhibit

Where: San Diego, California
When: May 23 to 26, 1999
Contact: Jolene Gulley or Judy Welp, 800 888-6276, Ext. 3008 or 3049

Highlights of the conference include over 120 educational workshops featuring topics ranging from electronic commerce to supply chain management to strategic alliances.

Industry and Innovation in the 21st Century

Where: Saratoga Springs, New York
When: June 15 to 18, 1999
Contact: Rebecca Lunetta, 202 429-8873

The American Council for an Energy-Efficient Economy is hosting its 1999 summer study on energy efficiency in industry.

Laboratories for the 21st Century

Where: Cambridge, Massachusetts
When: September 8 to 10, 1999
Contact: FEMP Workshop Hotline, 703 243-8343

EPA and DOE's Federal Energy Management Program will sponsor a 3-day forum focusing on finding a reasonable, responsible approach to energy efficiency and the use of renewable energy sources in laboratory design and operation.

18th Annual National Recycling Congress

Where: Cincinnati, Ohio
When: September 27 to 29, 1999
Contact: 703 683-9025

The National Recycling Congress is geared toward anyone involved in recycling, from program planning and implementation, to education, technical assistance, and policy.



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Call For Papers

Present your paper on energy efficiency in laboratories at the Laboratories for the 21st Century conference, September 8 to 10, 1999, in Cambridge, MA. **Fax a 200-word abstract by June 30, 1999, to 781 674-2906.** Presenters will be notified by July 15, 1999.