



Conservation News

Conservation News is a quarterly publication of EPA's Facilities Management and Services Division (FMSD) Conservation Information Clearinghouse. FMSD established the Clearinghouse as a focal point for collecting and disseminating information about pollution prevention and energy and water conservation to serve all EPA facilities. The newsletter is intended to educate, inform, and help EPA staff involved in these efforts at EPA-owned or -leased facilities. We welcome your comments and suggestions. To receive additional copies of this newsletter, submit information for inclusion, or learn more, call the Clearinghouse Hotline at (202) 260-9803 or e-mail p2group@epamail.epa.gov. You can also access the newsletter through the Internet at <http://www.epa.gov/consrv-news>. ♪



A Note From the Agency Conservation Coordinator

AGENCY FORGES PARTNERSHIPS FOR COMMON GOALS

by Phil Wirdzek, FMSD

At a recent international meeting on solar power, EPA Administrator Carol Browner noted the important role that partnerships have played in protecting the environment and strengthening the economy. Partnerships that lead the pack and invest in renewable technologies will reduce our dependence on fossil fuels, and in turn will reduce polluting emissions and save precious natural resources. EPA is already participating in and seeking out opportunities to collaborate with other interests, resulting in savings in facility utility bills and in innovative approaches to address common challenges in preventing pollution. This issue of *Conservation News* highlights a handful of these joint ventures.

Our partnership with the Department of Energy's (DOE's) "You Have the Power Campaign" gives EPA an opportunity to recognize individuals or groups bringing about energy-efficient changes not just at Headquarters, but throughout the Regions. We recently selected 1998 energy "champions" to recognize some of these impressive efforts. We help organize and participate in public conferences to network with other federal agencies and government organizations, the private sector, and the community to exchange ideas and success stories. For example, in May, EPA Headquarters participated in Public Service

Recognition Week (PSRW), a national campaign involving U.S. government employees in more than 1,000 cities. Our participation in PSRW highlighted many of the Agency's high-profile projects.

Elsewhere at the facilities, we're conducting energy audits to identify potential energy-saving projects, such as our March assessment of the Duluth, Minnesota, laboratory. The energy-saving activities at the Andrew W. Breidenbach Environmental Research Center may have components transferable to other facilities. And the events listed in this issue's Calendar may provide just the training you are looking for to help implement energy-efficient measures at your facility.

We're forging partnerships to attain common goals in preventing pollution and saving energy – and we're seeing that the Agency employees are picking up more on these initiatives. ♪

P2 Update

We are in the process of collecting facility-specific pollution prevention plans and waste prevention and recycling surveys. This information reflects each facility's pollution prevention efforts and goals and is used to track Agency-wide progress in prevention pollution. Thanks to all of you who have sent in your facility's plan and survey!

For those of you still developing your plans and completing your surveys, please send them to p2group@epamail.epa.gov, or Phil Wirdzek (MC3204) at EPA Headquarters, Waterside Mall.



Partnerships and Information Exchange

ENERGY EFFICIENCY WORKSHOP SPOTLIGHTS LABORATORIES

On May 5-7, 1998, EPA and DOE co-sponsored the second annual "Laboratories for the 21st Century" workshop in Berkeley, California. The conference was well attended by representatives from federal agencies, engineering and design firms, and energy services companies. The desired outcomes of the workshop were varied, with the common interest to gain a better understanding of energy efficiency and applicability of energy-efficient design and technologies within laboratory environments.

Don Prowler, Professor of Architecture at the University of Pennsylvania and Princeton University, set the tone of the workshop by reconfirming the fundamental issues and goals of sustainability, complemented by the concept of an integrated laboratory design. Discussions on barriers to energy efficiency and the use of renewable technologies raised very pertinent problems that laboratories face when trying to incorporate energy efficiency into their operations. Challenges include ensuring compliance with safety and health regulations while overcoming barriers such as expensive energy, lack of senior management champion, pre-set construction budgets, risk aversion, inflexibility, least first cost, misinterpretation, preconceived notions, and lack of metering. These barriers were further discussed during each module of the workshop.

Dale Sartor and Geoffrey Bell from DOE's Lawrence Berkeley's National Laboratory (LBNL) presented the process by which to approach laboratory retrofits and new construction. They distributed DOE's "Guide for Energy-Efficient Research Laboratories," on a disk, to each participant as a tool for evaluating energy efficiency



projects. The software, which can be downloaded from the Internet (<http://eande.lbl.gov/CBS/Ateam/R-LabDG/>), provides comprehensive information on right-sizing, direct digital controls, supply systems, exhaust systems, distribution systems, lighting systems, and commissioning.

Frank Kutlak, from the National Institutes of Health (NIH), is currently in the process of building a 250,000-square-foot laboratory in Bethesda, Maryland. Mr. Kutlak provided in-depth knowledge of overcoming barriers, identifying energy efficiency opportunities in a laboratory environment while maintaining the integrity of science and ensuring occupant satisfaction. Several drawings of the building were presented in order to demonstrate how to maximize efficiency through design and the use of energy-efficient equipment throughout the facility.

Steve Eirschele, PE, from the Fred Hutchinson Cancer Center in Seattle, Washington, presented its new research facility which received R&D Magazines' "Laboratory of the Year" award for 1993. The facility received an energy smart design award by saving over 30 percent of the predicted energy consumption. Mr. Eirschele provided key points in the design and post-construction phases for the projects. Energy conservation measures for the Center's newest facility, the Thomas Clinical Research Building, were also presented. Mr. Eirschele estimates the Center saves nearly \$400,000 each year on energy conservation measures, most of which have payback periods of less than seven years.

Renewable opportunities were presented by Nancy Carlisle, from DOE National Renewable Energy Laboratory (NREL), and Don Prowler. Several types of technologies were discussed for application in laboratories, including biomass, cogeneration, day-lighting, geothermal (ground source) heat pumps, photovoltaics, solar ventilation preheating, solar water heating, and wind. The most notable case study with renewable technologies was given by Otto Van Geet, DOE NREL, who presented DOE's Solar Energy Research Facility, in Golden, Colorado.

The workshop also addressed financing for energy-efficient designs and technologies. Participants questioned, "What happens when the utilities are deregulated?" and "How can I find financing support?" and "How do I maximize the savings opportunities in order to make a project attractive for an investor?" Energy-efficiency opportunities in laboratory buildings were addressed by Chuck Goldman, LBNL, "Utility Restructuring and Opportunities for Institutional Customers"; Mike Holda, LBNL, "Alternative Financing and Super Energy Savings Performance Contracts (ESPCs)"; and Phil Wirdzek, EPA, "The Environmental Protection Agency's Ann Arbor, Michigan, Laboratory - An ESPC Case Study."

The workshop ended with a discussion of design integration, "green" design, and environmentally conscious design. EPA's Energy Star Buildings Program solicited comments for criteria that could be used in developing an Energy Star label for laboratories. The label would distinguish energy-efficient laboratories from conventional, energy-intensive design and operation. Several ideas were discussed and participants expressed interest in working to develop such a label. Attendees left with ideas for potential projects, answers to common questions, points of contact for reference, and a better understanding of energy efficiency and applicability of energy-efficient design and technologies within laboratory environments. ‡

BROWNER ADDRESSES SOLTECH '98

EPA Administrator Carol Browner touted the benefits of solar energy recently at Soltech '98, the annual conference of the Solar Energy Industries Association (SEIA), the Utility Photovoltaic Group (UPVG), and the Interstate Renewable Energy Council (IREC). The conference, co-sponsored by EPA, met in Orlando, Florida, from April 25-30. Among other things, attendees learned about deregulation in the electric industry, discussed the environmental and economic advantages of solar power, and received an update on the Clinton administration's Million Solar Roofs Initiative (see the Fall 1997 issue of Conservation News for a summary of the initiative). In her speech, Administrator Browner discussed the role the solar industry may play in environmental protection and economic growth. Excerpts from her speech are provided below.


"...Renewable energy is not only about protecting the environment. It is about good business, plain and simple. The fledgling solar industry of the 1970s has truly begun to shine in the 1990s. When we talk solar today, we're talking big time and fast-growing. ... The renewables business proves what the President says: environmental protection and economic progress go hand-in-hand. ... To make progress, we are counting on what has long made this country great – our creativity, innovation, our ingenuity. ... And we are forging partnerships – between industries, governments, and communities – partnerships that get the job done. ...

"More than 2,000 of the world's experts on the global environment have told us there is ample evidence that, for the first time in history, pollution from human activities is changing the Earth's climate. Modern industrial activity – particularly the burning of fossil fuels – is filling the atmosphere with carbon dioxide and other 'greenhouse gases,' which trap the sun's heat and cause the steady, gradual warming of the Earth's surface temperatures. ... Today, two-thirds of our electricity comes from fossil-fuel-fired power plants. ... If we are to effectively deal with global warming – as well as provide the American people

with clean, safe, healthy air – this country must use fossil fuel more efficiently, and renewable energy more frequently. ...

"Addressing global warming is *not* about ratcheting down our economy. It *is* about investing in new technologies that make our industries more efficient, more profitable – and cleaner in the process. It *is* about developing America's technological leadership – the kind that you, and other environmental technology industries, demonstrate every day. ...

"Over the past five years, we have proved that you can have strong environmental protection and still have robust economic growth and prosperity. When it comes to global warming, we can do it again: building partnerships between governments, communities, and industries – including the solar industry – to get the job done." ‡



Point your web browser to
<http://www.epa.gov/solar> for
information on EPA's solar-related
activities, guidance documents, and links to fact
sheets and solar programs. The site also describes
solar activities at EPA facilities and gives national
and regional contact information.

EPA MOVES FORWARD WITH "POWER"

As part of its participation with the DOE-sponsored "You Have the Power" campaign, each year EPA selects energy "champions" – federal employees who are doing extraordinary things to save energy and money. This year, seven EPA employees have been recognized for supporting the Agency's energy program and the national goals of conservation and environmental protection.

This year's champions are from Headquarters, Region 4, and Region 5. Stephanie James, a mechanical engineer, was honored for her work to incorporate energy-efficient elements into the design of the new EPA Environmental Science Center in Fort Meade, Maryland. Clay Peacher, a facility manager in Region 4, was honored for incorporating renewable technologies and initiating a geothermal study at the National Health and Environmental Effects Research Laboratory in Gulf Breeze, Florida. A team composed of Steve Dorer, Dick Lawrence, Lance Swanhorst, and Bill Wise was honored for working together to safely improve laboratories while dramatically saving energy, costs, and resources by implementing EPA's first energy savings performance contract at the National Vehicle and Fuel Emissions Laboratory in Ann Arbor, Michigan. Posters of

the champions with a note of their accomplishments have been produced as part of the campaign, and can soon be found on the Internet at <http://www.eren.doe.gov/femp/yhttp/champs.html>.

The campaign assists energy managers in increasing awareness about pollution and energy-efficient practices and products. In addition to posters of the champions, a 20-foot x 30-foot "You Have the Power" banner, "Save Energy" posters, and handouts with energy saving tips are available. All of the materials will be rotated to EPA facilities to promote energy conservation and awareness within the Agency and facilities. For more information on the campaign or to download artwork featured on posters and banners, visit the campaign's web site (<http://www.eren.doe.gov/femp/yhttp>). ☞

EPA'S OA PARTICIPATES IN PUBLIC SERVICE RECOGNITION WEEK

On May 7-10, 1998, EPA's Office of Administration (OA) joined U.S. government employees in more than 1,000 cities and military bases around the world in celebrating the fifteenth annual Public Service Recognition Week (PSRW). This year's theme, "Public Employees...Working for You, Working for America," focused attention on the men and women who serve our country as public employees, and the events helped educate the public on the nature and effectiveness of government service.

EPA set up booths as part of the PSRW exhibit in Washington, DC, on the National Mall. OA's booth included our "You Have the Power" banner, which was used as a backdrop; a model of the new Fort Meade Environmental Science Center in Fort Meade, Maryland; posters of various OA/OARM activities; documents and brochures detailing the OA pollution prevention program; pollution prevention and Energy Star business cards; and three computers showing the OA web page and a sample spreadsheet used to track energy consumption. Television monitors showed videos on recycling and composting, new features of the Research Triangle Park in North Carolina and the Columbus Center in Maryland, and work underway at EPA facilities under energy savings performance contracts. The booth displayed posters on pollution prevention, energy conservation, "You Have the Power" champions, and EPA's metropolitan transportation program.

In addition to OA, the Offices of Water and Education represented EPA. Other Executive Branch agencies and the military also participated in the Mall displays, and further activities took place in the pavilion in front of the Capitol. PSRW is one way agencies can build partnerships with other governmental organizations. For more information, contact the Public Employees Roundtable at (202) 401-4344. ☞



Spotlight on Facilities

DULUTH ENERGY AUDIT REVEALS POTENTIAL FOR SAVINGS

On March 23-25, 1998, EPA organized an energy audit and initial assessment of its laboratory in Duluth, Minnesota. Assisting in the audit were Xenergy, Inc., which viewed the facility based on the Energy Star Buildings concept, and Booz-Allen & Hamilton, which looked at the facility in terms of energy savings and awareness opportunities in line with the Agency's National Energy and Water Conservation Program.

Duluth Facility Overview

- The 91,000-square-foot laboratory includes a main laboratory building, an annex, and a storage shed.
- The facility is located approximately 300 feet from Lake Superior.
- The facility uses electric cooling and dual fuel heating (EPA utilizes an interruptible natural gas rate, and switches to oil when the gas supply is interrupted).
- In FY97, the total utility bills were \$109,880 (2,432,853 kWh) for electricity, \$74,044 (215,620 ccf) for natural gas, and \$5,790 (7,620 gallons) of oil.
- Oil consumption was limited to short periods in December and January of each year when gas supply was interrupted.

Xenergy is generating an energy baseline model using information recorded during the visit. It will develop recommendations for energy savings measures such as variable air volume supply air, variable speed drives, solar ventilation preheating, and more efficient equipment, based on the five stages of the Energy Star Buildings program. Other opportunities EPA may consider include:

- *Wind energy.* The facility is located on the western shore of Lake Superior, and winds from the northeast can be very strong at times. Since most of the electricity consumption is a baseline load (does not vary much from season to season), most of the electricity costs can be eliminated using wind turbines. The turbines would have to be placed to fully capture the magnitude of the winds off of the lake winds.
- *Photovoltaics.* The potential of using solar radiance to generate electricity is based on unblocked sunlight and large, flat spaces above the tree line. The lab in Duluth

presents a good opportunity since there is open space on the roof of the main laboratory far from surrounding trees. Photovoltaic (PV) cells could also be used to offset some of the baseline electricity consumption. The monthly demand rate is about \$7.70/kW and the consumption rate is about \$0.03/kWh. Historically, the monthly demand charge accounts for about 33% of each month's electric bill. Since the peak demand time of day coincides with the highest sunlight incidence period, PV could offset much of the demand charges.

- *Geothermal.* Lake water is currently being used to handle most of the cooling load in the summer. Since much of the energy consumption at the facility is for winter heating, it makes sense to use lake water for pre-heating air during the very cold winter months as well. It may be cost-effective to design a hybrid system using closed-loop ground-source heat exchangers for when the lake water temperature falls below the deep ground temperature (about 48°F).
- *On-demand water heating.* The laboratory uses an old, inefficient boiler to provide water heating for fish tanks and lab experiments. Water from this boiler at 114°F is mixed with chilled water at 40°F to provide water at 4 temperatures (50°F, 59°F, 86°F, and 95°F). Replacing this boiler with a water heater that would provide hot water at the maximum necessary temperature (95°F) only when needed could save a significant amount of energy.

The Duluth facility energy manager Rod Booth has already taken several steps towards reducing energy consumption. In order to get large reductions in the annual consumption on a square foot basis, facility-scale renewable energy sources should be investigated, and winter gas consumption should be a main focus. Xenergy's report assessing the cost effectiveness of specific measures may be combined with wind, solar, and geothermal opportunities to develop a cost-effective, integrated energy conservation project which will maximize the reduction in energy consumption and energy-related emissions. ♣

EARTH DAY AT GED BRINGS COMMUNITY TOGETHER

by Clay Peacher, National Health and Environmental Effects Research Laboratory, Gulf Ecology Division, Pensacola, Florida

In 1996, EPA's Gulf Ecology Division (GED) began opening its doors to celebrate Earth Day, showing the public who we are, what we do, and how we are working to protect the environment. The program was built around EPA volunteer efforts to reach the following goals:

- Educate and inform the local citizens regarding what the public can do to protect and improve the environment
- Explain the mission and supporting research of GED using posters, displays and exhibits
- Identify GED as a marine, estuarine and near-coastal research facility, gathering information for the entire Gulf coast
- Establish GED as a community resource for seminars, guest speakers, and educational tours and field trips.

This year, we built on successes of our past years' events by inviting even more schoolchildren (over 800) to view the facility, and by expanding our exhibits. This year, we celebrated Earth Day through the week of April 20, culminating in an open house on Saturday, April 25, from 10-4 PM. Children from Dixon elementary school in Pensacola, Florida (mainly minority children under-represented in science), were particularly excited to examine flora and fauna from the near-shore Gulf of Mexico that were set up in more than 40 marine flow-through aquaria. Both 4th and 5th grade students were eager to use the dissecting microscopes to view algae and zooplankton — a first time experience for most of them. EPA staff on hand took time to explain food web concepts and causes of environmental degradation to the children and other visitors. Trailered research vessels, sampling equipment and diving gear were also on display, and helpful EPA staff offered demonstrations and explanations to interested groups.

Adults and children alike enjoyed the informative exhibits. Children are particularly drawn to the "petting zoo," a 1-meter by 2-meter shallow table with grass shrimp, starfish, seashells, and small crabs. Civic leaders, state and local regulatory authorities and citizens enjoyed participation in the Earth Day activities and look forward to creating additional opportunities for interaction, as evidenced by the letters, smiles and goodwill fostered at this successful event. Additional information is available on our web site (<http://www.epa.gov/ged/earthday/earth100.htm>). ♣



A high five goes out to Region 5 for its Earth Day activities. The Region's web page features Earth Day information, activities and energy saving tips under this year's Earth Day theme, "One Planet, In Our Care, Irreplaceable". To see how Region 5 is doing its part, visit <http://www.epa.gov/region5/earthday.htm>.

AWBERC SUCCESES A MODEL FOR FACILITIES

by Rhonda Hampton, Andrew W. Breidenbach
Environmental Research Center, Cincinnati, Ohio

Since the late 1980s, FMSD staff has made energy conservation a top priority at the U.S. EPA Andrew W. Breidenbach Environmental Research Center (AWBERC) in Cincinnati, Ohio. The Cincinnati staff takes great pride in the success of the energy conservation measures at AWBERC.

The AWBERC is a 10-story laboratory and office facility (approximately 350,000 gross sq. ft.) constructed in the early 1970s. The facility has many unique features, one of the most important being a one-pass air HVAC system. This system heats or cools outside air, distributes it throughout the building, and then exhausts it directly to the atmosphere. No conditioned air is recirculated. Although a necessary health and safety feature, this requires a tremendous amount of heating and cooling energy – much more so than if the air were recirculated as it generally is in non-laboratory buildings. The one-pass air system is the biggest component of the facility's energy consumption.

Below is a brief description of the energy conservation projects which have been completed:

- *Night Set Back.* One of the most effective energy-efficiency improvements we have implemented is night set-back of the HVAC system, when airflow rates are reduced during nighttime unoccupied hours. This allows us to save approximately half the heating, cooling, and ventilation costs we would experience if we operated at full capacity around the clock.
- *New HVAC Control System.* A new Johnson Metasys control system was installed in 1995 to replace the original (early '70s) Honeywell system. This system monitors and controls the operation of all mechanical systems in the AWBERC facility. One of the energy conservation features of this system is the capability to program night set-back of the HVAC system.
- *Green Lights.* Although lighting energy consumption at AWBERC pales in comparison to that required by the HVAC system, we implemented a very successful Green Lights project at AWBERC in 1996. The entire facility (interior and exterior), was upgraded with energy-efficient lighting. The project involved the installation of T-8 lamps, electronic ballasts, reflectors, timers on corridor fixtures, occupancy sensors in single offices; and the delamping of fixtures in offices and corridors. The project resulted in energy savings of approximately \$5K/month, and the initial cost was

reduced with an \$80K rebate from the local utility.

- *Absorption Chiller.* A new high-pressure absorption chiller was installed in 1997 to supplement existing electric chiller capacity. The new chiller is 10 percent more efficient than the approximately 25-year-old machine it replaced.
- *Elevator Modernization.* The five-passenger elevators were updated with new controls in 1997. The new, micro-processor based system is more efficient than the 20-year-old system it replaced, the cars are dispatched more efficiently – the closest car is sent to answer the calls. Although this project was not implemented solely for energy conservation, it resulted in improved energy efficiency for the building's elevators.

In addition, several projects are in the planning stages and should be implemented during fiscal year 1998 (FY98) or FY99:

- *HVAC Rebalance.* Under a current Building and Facilities (B&F) project, we are performing a complete building-wide rebalance of the HVAC system. The original reason for doing this project was to reduce the face velocity of our 160 fume hoods from 100 feet per minute (fpm) down to 80 fpm full open. In the course of completing this project, we sealed approximately 900 mechanical access doors in the building, and we sealed some supply duct leakage. In short, we are doing a thorough "tune up" of our HVAC system, ensuring it is operating at peak efficiency. This project also will eliminate the introduction of unconditioned, humid air, and the amount of outside air infiltration, saving energy by reducing the need to overcool/reheat for dehumidification.
- *Chiller Replacement.* The AWBERC facility is getting two new centrifugal chillers to replace the original (early '70s) chillers. The original chillers were rated at a full-load efficiency of 0.78 kW/ton, and the new chillers are rated at 0.62 kW/ton. The new chillers are also much more efficient at partial load.
- *Boiler Controls.* New boiler controls will automatically set the most efficient burn rate, saving on fuel consumption. The new design will incorporate an economizer cycle, further reducing fuel consumption.

Other projects to be completed in the next two years include replacing the elevator motor-generators with state of the art technology (Silicone Controlled Rectifier Drives), replacing the rear entrance with a revolving door, and caulking windows to replace worn weather sealing. Some other ideas for energy conservation, which will be implemented when funds are available, include variable air volume (VAV)

ventilation for AWBERC and the adjacent 6,000-square-foot Research Containment Facility, parking lot lighting upgrades, additional occupancy sensors, a small summer boiler, cooling tower upgrades, and boiler stack heat recovery. Anyone interested in obtaining additional information regarding any of these projects can contact Rhonda Hampton at (513) 569-7270. ✍

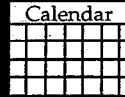


Executive Order Update

PROPOSED CHANGES TO EXECUTIVE ORDER 12873 MAY STREAMLINE FACILITY REPORTING

In recent months, the Federal Environmental Executive released draft proposed changes to Executive Order (E.O.) 12873, *Federal Acquisition, Recycling, and Waste Prevention*. The proposed changes would update the E.O. by incorporating lessons learned and addressing revised regulations. The changes may streamline facility reporting in response to environmental directives, consolidating the reporting requirements of the so-called "greening the government" executive orders. These orders include E.O. 12843, *Procurement Requirements and Policies for Federal Agencies for Ozone-Depleting Substances*; E.O. 12844, *Federal Use of Alternative Fueled Vehicles*; E.O. 12845, *Requiring Agencies to Purchase Energy-Efficient Computers*; E.O. 12856, *Federal Compliance with Right-to-Know Laws and Pollution Prevention*; E.O. 12873, *Federal Acquisition, Recycling, and Waste Prevention*; E.O. 12902, *Energy Efficiency and Water Conservation at Federal Facilities*; and E.O. 12969, *Federal Acquisition and Community Right to Know*.

The proposed changes to the E.O. may establish performance goals and requirements to track progress in pollution prevention, and may emphasize responsibilities to be delegated if environmental efforts are to be successful. The E.O. also may revise certain definitions to be more consistent with statutes or regulations. These types of changes may clarify ambiguous terms, assist agencies in formulating guidance to comply, and incorporate lessons learned to help others steer clear of past pitfalls. While it is unclear exactly what the E.O. revisions will be or when a new order will be issued, EPA's pollution prevention program will effectively address any resulting directives. It is anticipated that any changes will only assist our program in moving forward and in promoting better ways to prevent pollution. ✍



Conservation Calendar

If you have questions about the activities below or want to publicize an event, call the Clearinghouse at (202) 260-9803.

JUNE

- 2 TeleFEMP VI: Energy Technology Solution for the '90s and Beyond, Teleconference*
- 2 Building Business Workshop, Los Angeles, CA**
- 18 Building Momentum Workshop, St. Louis, MO**
- 21-23 Building Owners and Managers Association (BOMA), Philadelphia, PA#
- 23 Building Know-How Lighting Upgrade Sessions, Seattle, WA**

JULY

- 1 Building Know-How Lighting Upgrade Sessions, Dallas, TX**
- 16 Building Momentum Workshop, Cincinnati, OH**
- 29 Building Know-How Lighting Upgrade Sessions, Detroit, MI**

AUGUST

- 3-5 Energy '98: Breaking the Barriers, Bellevue, WA (see <http://www.energy98.gsa.gov>) Δ
- 6 Building Business Workshop, San Francisco, CA**
- 23-28 Energy Efficiency in a Competitive Environment, Pacific Grove, GA †

* Jacinda Davis, (202) 289-2201

** Energy Star Hotline, 1-888-STAR-YES

Phil Coleman, Lawrence Berkeley National Laboratories, (202) 484-8485

Δ Rick Klimkos, Federal Energy Management Program, (202) 586-8287

† Rebecca Lunetta, American Council for and Energy Efficient Economy, (202) 429-8873

More information on upcoming workshops may be found at <http://www.epa.gov/appdstar/buildings/schedule.html> and <http://www.ebuild.com>.