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FEDERAL ENERGY MANAGEMENT PROGRAM

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FOCUS

F e d e r a l E n e r g y M a n a g e m e n t U p d a t e

FEMP AWARDS FEDERAL ENERGY EFFICIENCY FUND GRANTS TO NASA, INTERIOR, AND COMMERCE

The Department of Energy recently awarded grants to the National Aeronautics and Space Administration and the Departments of the Interior and Commerce through its Federal Energy Efficiency Fund (FEEF). They are the first grants to be awarded under this program designed to help Federal agencies pay for energy efficiency and water conservation projects. Below are summaries of the initial FEEF grant projects awarded through November 4, 1994.

Dangling Rope Marina Project, National Park Service, Department of Interior—This project will fund the installation of photovoltaics at the National Park Service marina on Lake Powell at Dangling Rope, Utah. This project will combine

Continued on next page

FEMP PROMOTES FINANCING TO IMPLEMENT PROJECTS

To successfully implement Executive Order 12902, the Federal Energy Management Program (FEMP) is working to accelerate project funding from utilities and energy savings performance contracts (ESPC) to increase private sector investments in energy efficiency, renewables, and water conservation projects.

At a recent National Association of Energy Service Companies (NAESCO) meeting, Christine A. Ervin, Assistant Secretary for Energy Efficiency and Renewable Energy, emphasized the importance of private sector investments in Federal energy projects to achieve successful and simplified project implementation.

The Energy Policy Act of 1992 (EPACT) provided new language giving agencies the authority to enter into energy savings performance contracts and described the methodology of bringing ESPC into the mainstream of Federal procurement. EPACT also mandated that the Department of Energy issue a rule, with the concurrence of the Federal Acquisition Regulatory Council, that establishes procedures and methods for use by Federal agencies to select, monitor, and terminate contracts with energy service companies in accordance with laws governing Federal procurement. DOE expects to issue this rule in late Spring 1995. In addition to energy savings performance contracting, the Executive Order called for spurring the use of other innovative financing mechanisms such as utility rebates, which FEMP accomplishes through partnerships with industry, utilities, trade and professional associations.

MASTER

Continued on page 13

In This Issue ...

FEMP Federal Technology Alerts	3
130 Sites View TeleFEMP Broadcast I	3
Focus on New Technologies—Lighting	4
LCC Workshop Offered January 11 & 12	5
Changes in FEMP Training Schedule	5
Software Tools Now Available (BLCC 4.2, MotorMaster 2.2, FEDS 2.1) ..	6,7,10
Federal Relighting Initiative for FY95	8
U.S. Army Develops REEP Computer Tool	9
FEMP Participates in Annual Energy Forum ...	10
GSA Water Management Handbook	11
Help Desk Improvements	12
FEMP Considers New Award Categories	12
Teambuilding /Partnerships at GSA Workshop	13
FEMP Recruiting for Regional Teams	13
Federal Efforts Featured at AIA Symposium ...	14
Publications Available	15

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FEEF GRANTS

Continued from page 1

\$350,000 from the Federal Energy Efficiency Fund with \$438,500 in non-Federal funds contributed by the state, the utility, and the park vendor along with \$404,500 in Park Service and other Federal funding. Besides the 59 percent improvement in energy efficiency and the cost savings of \$270,149 (net after investment), the project offers environmental benefits which reinforce the value of the project. Chief among these is the discontinued use of diesel fuel which is barged into the marina to power the generators. In addition to a reduction of exhaust gasses which can accumulate at lake level during certain weather conditions, several minor fuel spills have occurred in the past, and a recent mishap nearly resulted in the diesel tanker sinking in the lake. The cost of cleaning such an oil spill has been estimated at over \$1 million.

Kennedy Space Center Project, National Aeronautics and Space Administration—The NASA Kennedy Project includes work on relighting office spaces, hangar bays, and laboratories. It also includes HVAC ducting modifications and the installation of heat pipes into the HVAC system to passively recover energy used in air conditioning the building. The grant request was for \$89,000 and is expected to qualify for an \$11,000 rebate from the local utility.

The Yellowstone National Park Project, National Park Service, Department of Interior—The first of two projects at Yellowstone will modify several of the widely-dispersed facilities at the Park saving well over 100 Billion Btu, and will result in over \$600,000 in savings to the taxpayer. The projects include simple retrofits such as insulating walls and ceilings and replacing windows and doors with more efficient products, as well as more complicated projects such as replacing a diesel generator with a more efficient generator and battery storage system. Also included will be modifications to district heating systems and propane storage systems to improve efficiency and finally, retrofitting lighting in a variety of buildings. Private funding supporting the project of approximately \$70,000 will be provided by the Yellowstone Institute.

The second project, funded under a separate grant, will improve building insulation, reduce ceiling height to reduce the volume of conditioned space, replace incandescent lighting with fluorescent lighting, and replace an oil heating system with a high efficiency gas system. The modifications will improve energy efficiency by more than 60 percent and save over \$330,000.

Northwest Fisheries Science Center, National Oceanic and Atmospheric Administration, Department of Commerce—The first water conservation project to be funded by the Federal Energy Efficiency Fund will recycle water that is currently passed once through fish culture tanks at the Center and drained to the waste water system. Approximately 218 million cubic feet per year of water will be saved or approximately 90 percent of the water used at the Center. As one of the largest water users in the City of Seattle, the reduction will make a measurable difference in the water demand for the City. For that reason, the City is providing \$216,173 in funding for the project. The Federal Energy Efficiency Fund will provide \$471,399 and the remaining \$173,654 will come from the Department of Commerce. The project will save over \$2.3 million and will have a simple payback period of five years.

For more information on the Federal Energy Efficiency Fund, call John Archibald of FEMP at 202-586-1613.

AMERICAN SOLAR ENERGY SOCIETY ANNOUNCES FUTURE SOLAR CONFERENCES

SOLAR '95 is scheduled for July 15-20, 1995 in Minneapolis, Minnesota. The conference will feature the 24th American Solar Energy Society Annual Conference and the 20th National Passive Solar Conference.

SOLAR '95 is the largest and most comprehensive national solar energy conference. Conference sessions will emphasize practical cost-effective applications of solar energy that can improve the nation's economy. Speakers are leaders in solar research and commercialization efforts. Tours and workshops are also planned in conjunction with the conference.

Other upcoming solar conferences include the following:

- SOLTECH '95, April 13, 1995, San Antonio, Texas;
- RETSIE '95, April 19, 1995, San Francisco, California.

For more information on SOLTECH '95 or RETSIE '95, call Ted Collins of FEMP at 202-586-8017.

For additional information on SOLAR '94, contact the American Solar Energy Society at 303-443-3130, or fax your request to 303-443-3212.

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FEMP READY TO LAUNCH FEDERAL TECHNOLOGY ALERTS

To strengthen DOE's efforts to get energy efficient and renewable technologies into Federal facilities, FEMP has added a new ingredient to its energy savings recipe. By January 1995, facility and energy managers at Federal sites will begin receiving *Federal Technology Alert* — a series of reports that summarize information on a proven energy-saving technology developed and manufactured in the United States.

Each *Alert*, developed and distributed through FEMP's New Technology Demonstration Program, will present a compilation of existing data on an energy-efficient or renewable technology promising significant Federal sector savings. It will include a description of the technology, a list of potential suppliers, and an overview of performance, potential applications (and limitations), and field experience. It will also include a sample life-cycle cost analysis developed for a particular site. The *Federal Technology Alert* will give facility and energy managers targeted information they need to consider adoption of the technology at their sites.

"*Alerts* are cost-effective, and meet the goal of quickly getting information to energy and facility managers to accelerate technology adoption," said Dave Conover, who leads New Technology Demonstration Program efforts at DOE's Pacific Northwest Laboratory for FEMP. "They also provide a much-needed short cut into the Federal sector for a number of promising, U.S. technologies," he added.

For the past three years, the New Technology Demonstration Program has led government demonstrations of emerging, energy-efficient technologies manufactured in the United States. The goal is to provide firsthand performance data to energy managers to encourage timely adoption of the technology while creating a new market for private industry.

The *Federal Technology Alert* will complement demonstrations by providing information on technologies for which private sector and some Federal sector performance data is available.

"There was no sense in re-demonstrating technologies that are already in use in the private sector, just to get the data in the hands of Federal decision makers. Our goal is to speed Federal adoption of energy-efficient technologies, so why slow the process and increase costs by collecting additional data?" Conover added.

130 SITES ACROSS THE COUNTRY VIEW TELEFEMP BROADCAST I

October 3, 1994, marked the Federal Energy Management Program's debut in using television to spread its message and to help kick off the Department of Energy's 1994 Energy Awareness Month. From all accounts the broadcast was successful!

Highlights of the broadcast were the uplink of Secretary O'Leary from Carlsbad, New Mexico, and closing remarks by Assistant Secretary for Energy Efficiency and Renewable Energy, Christine A. Ervin, who encouraged Federal facility managers to implement more projects. The broadcast also included energy trivia and helpful hints to save energy offered by energy conservation experts.

TeleFEMP Broadcast I was viewed by more than 2,000 viewers in over 130 satellite downlink sites in approximately 30 states nationwide. Preliminary evaluation results received to date, indicate the teleconference was extremely well-received. The majority of respondents indicated that they would participate in "TeleFEMP Broadcast II," planned for Spring 1995, possibly as part of Earth Day events. FEMP plans to analyze and report on the evaluation results to learn from this first experience and incorporate changes into the next broadcast.

If you are interested in finding out how to conduct your own teleconference, or if you would like a video tape of TeleFEMP Broadcast I, please call the FEMP Help Desk at 1-800-566-2877.

Several issues of the *Federal Technology Alert* are scheduled for 1995. Areas of focus include heat pump water heaters, desiccant cooling systems, dehumidification systems, industrial boilers, window glazings, and lighting systems. While the *Federal Technology Alert* is targeted primarily at Federal facility and energy managers, the information will be available to potential private sector customers as well.

In addition to the new service, according to DOE's New Technology Demonstration Program Manager, Dean DeVine, the program will benefit from a teamwork approach through the integration of three participating DOE national laboratories with PNL. Lawrence Berkeley Laboratory, the National Renewable Energy Laboratory, and Oak Ridge National Laboratory have joined PNL in this effort. The labs will conduct technology demonstrations and produce "Alerts" based on their areas of expertise. An interlaboratory council was

Continued on page 5

DOE UNVEILS NEW LIGHTING TECHNOLOGY

The Department of Energy recently announced a scientific and technological breakthrough in lighting. The highly-efficient system consists of a newly developed, powerful sulfur lamp coupled to a large semi-transparent light pipe. DOE inaugurated the use of the system at its Forrestal Headquarters Building in Washington, D.C. and at the Smithsonian Institution's National Air and Space Museum in October.

The sulfur lamp was invented three years ago by Fusion Lighting, a small high-technology firm in Rockville, Maryland. Fusion discovered that sulfur, stimulated by microwave energy, could be used in place of mercury in their ultraviolet industrial lamps to produce a very bright, near-sunlight quality, light.

The high efficiency and very small size of the sulfur lamp is ideal for use with recently developed light pipe technology by A. L. Whitehead of Vancouver, British Columbia. This combination results in long luminous tubes which provide high quality, high-efficiency illumination to large indoor or outdoor spaces.

This technology represents a collaborative effort involving DOE's Lighting Research Group at the

Lawrence Berkeley Laboratory; Battelle/Pacific Northwest Laboratories; Fusion Lighting, Inc.; the National Air and Space Museum; and A.L. Whitehead.

Christine A. Ervin, Assistant Secretary for Energy Efficiency and Renewable Energy said at the inauguration of this technology in October, "In observance of Energy Awareness Month, we are pleased to demonstrate the first use of what we believe is a very advanced and promising new lighting technology. It can save large amounts of energy and at the same time deliver more quantity and better quality light. Such a technology can improve vision and benefit both the economy and the environment."

An environmental advantage of the new sulfur lamp is that, unlike most other high-efficiency lamps, it uses no mercury. Disposal of mercury-laden lamps has been an environmental problem, often hampering conservation efforts.

For additional information on sulfur lamp technology, contact Carol Jones, Battelle/Pacific Northwest Laboratories, 901 D Street, SW, Suite 900, Washington, DC 20024-2115.

Light from a small, intensely bright light source—such as the new sulfur lamp—is focused by a parabolic reflector so that it enters the light pipe within a small angular cone. Light travels down the pipe, reflecting off of the prismatic film (A) that lines the outer acrylic tube. The prismatic film reflects the light via total internal reflection (C), an intrinsically efficient process. Some of the light striking the film (at A) is not reflected, though, and "leaks out" of the pipe walls (B), giving the pipe a glowing appearance. A light ray that travels all the way down the pipe will strike the mirror at the end (D) and return back up the pipe. A special light-extracting surface (another type of reflecting film) is used to draw the light out of the pipe, in a controlled manner, to where it is most needed (E).

CHANGES IN FEMP TRAINING SCHEDULE FOR MAY 1995

The FY 1995 Training Schedule, published in the *FEMP Focus* in September, has been changed as follows:

- May 1-2 FEMP University, Chicago, IL
Federal Energy Management
- May 3-5 FEMP University, Chicago, IL
Energy Savings Performance Contracts
- May 15-17 FEMP University, Rockville, MD
Federal Energy Decision Screening
- May 17-19 FEMP University, Rockville, MD
Federal Relighting Initiative
- May 22-24 FEMP University, Rockville, MD
Life-Cycle Costing/ASEAM

The changes are due to recent developments. We regret any inconveniences and will help you make any adjustments. For assistance, call Lisa Frey, Camber Corporation, 202-393-1648.

FEMP TRAINING REMINDERS 1994

- Jan. 10-13 Washington, DC
Energy Savings Performance Contracting II
Contact: Lisa Frey
202-737-1911
- Jan. 23-25 San Diego, CA
Federal Energy Decision Screening
Contact: Cindy Griswold
509-372-4368
- Jan. 24-25 Seattle, WA
Water Resource Management
Contact: Cindy Griswold
509-372-4368

To obtain copies of FEMP's FY 1995 Training Edition of the *FEMP Focus*, which includes training descriptions and schedules for the entire year, please call the FEMP Help Desk at **1-800-566-2877**.

LIFE-CYCLE COST WORKSHOP TO BE OFFERED JANUARY 11 AND 12

A "Life-Cycle Costing Workshop for Energy Conservation in Buildings" will be held January 11 and 12, 1995 in Des Moines, Iowa. Participants will be prepared to analyze projects in a way that meets Federal guidelines or the needs of private-sector decision makers. The course emphasizes when and how to use the lowest life-cycle cost or lowest savings-to-investment ratio. Attendees are also given hands-on experience with the BLCC software developed to aid in making calculations.

The instructors will be Richard Rusk, P.E., of Iowa State University and Gene Meyer, P.E., of Kansas State University. Each instructor has several year's experience in the field of energy conservation in buildings and is qualified to teach a workshop which meets the training requirements of DOE's Federal Energy Management Program.

Participants will include Federal energy managers, HVAC engineers, architects, building facility managers, utility customer service representatives, and state and local government energy managers.

"The course content was developed by NIST for DOE's Federal Energy Management Program and meets the requirements for training of Federal energy managers in the Energy Policy Act of 1992," according to FEMP's Dean DeVine.

The workshop is sponsored by the Center for Building Energy Research at Iowa State University, the Iowa Department of Natural Resources, and Iowa State University Extension. The cost is \$295 for the two-day workshop. The fee includes all handouts, lunch each day, and breaks.

Contact Richard Rusk at 515-294-1397 with questions on course content and Kerri Eggers at 515-294-3080 to register.

FEDERAL TECHNOLOGY ALERTS *Continued from page 3*

formed to eliminate duplication and to coordinate technology assessment, communications and other efforts intended to make sound information on new energy-saving technologies readily available to FEMP customers across the Federal sector.

If you would like to be put on the mailing list for the *Federal Technology Alert*, please contact Karen Stockmeyer, Pacific Northwest Laboratory, at 202-646-7794. Or fax your request and mailing information to Karen's attention at 202-646-5233. The first issue will feature Liquid Pressure Amplifiers, and will be mailed out in early- to mid-December.

1995 VERSION OF LIFE-CYCLE COST ANALYSIS SOFTWARE NOW AVAILABLE

The National Institute of Standards and Technology (NIST), under the sponsorship of the Department of Energy's Federal Energy Management Program, has updated building life-cycle cost analysis software for fiscal year 1995.

BLCC 4.2-95

BLCC 4.2-95 is one of four computer programs developed by NIST that provides economic analysis of proposed investments in buildings and building systems which are intended to reduce long-term operating costs. These programs are especially useful for evaluating costs and savings related to energy and water conservation projects and for selecting project alternatives with the lowest life-cycle cost. The programs are appropriate for Federal, state, local government, and private sector use. They are designed to run on most IBM-PC compatible microcomputers. No special hardware or graphics capabilities are required.

BLCC 4.2-95 can be used to calculate the life-cycle costs, net benefits, and savings-to-investment ratios of Federal and private sector energy projects. Up to 99 alternative designs can be evaluated simultaneously to determine which has the lowest life-cycle cost. BLCC 4.2-95 provides economic analysis for different project evaluation environments:

- 1) Federal Government: Projects falling under Federal Energy Management Program guidelines, OMB Circular A-94 guidelines, or DoD Military Construction guidelines.
- 2) Private Sector: Projects requiring analysis of tax consequences (for-profit buildings or homeowner-occupied housing.)
- 3) General: Projects which do not require tax analysis or specific LCC guidelines.

The User's Guide for the BLCC computer program is included on the BLCC program diskette and can be printed directly from the disk file in *WordPerfect 5.1* and reproduced as needed.

New Features in BLCC 4.2-95

The 1995 version of BLCC has two new features: (1) special provisions for the economic analysis of water conservation projects and (2) calculation of CO₂, SO_x, and NO_x emissions corresponding to the energy use of the project alternatives being evaluated.

Water Conservation

BLCC can now make calculations for water conservation projects in the same manner that it does for energy conservation projects. The water-related data entry screens are similar to the energy-related data entry screens, in that annual amounts and base year unit costs, price escalation rates, and annual usage indices can be entered. Water is primarily differentiated by usage and disposal quantities and costs. These two categories are further subdivided into two seasonal rate periods, summer and winter. This allows two different prices and corresponding amounts to be specified for both usage and disposal in order to reflect the seasonal differences in rate schedules in some locations.

Separate price escalation rates can be entered for water usage and water disposal, and separate annual indices can be entered for water usage and water disposal (not differentiated by season in either case). Up to five different price escalation rates, each applicable to a user-specified time period, can be entered for both usage and disposal costs.

Emissions Estimates

BLCC can now estimate the air pollution emissions corresponding to the energy use in a building or building system, as reflected in the project analysis. Estimates are provided for CO₂, SO_x, and NO_x, in Kg per year and in Kg over the study period used in the LCC analysis. At present, these emission estimates are based on national average data and may not be precisely representative of local amounts, especially with regard to electricity generation. The emission estimates are provided for a particular project alternative in the detailed LCC report for that alternative. They are also included in the comparative economic analysis between any two project alternatives to show the reductions attributable to the more energy-conserving alternative relative to the base case. The annual emission estimates are computed from the base annual energy consumption amounts (unindexed). The life-cycle emission estimates are computed using annual usage indices (if any) and, in the case of SO_x for electricity, reduction factors for SO_x over time.

The factors used in computing these emissions data are included in a file called EMISSION.FIL, included with version 4.2-95. These emission

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1995 LCC SOFTWARE NOW AVAILABLE*Continued from previous page*

factors are documented in a NIST Interagency Report entitled "Air Pollutant Emission Factors for Federal Energy Conservation Projects," October 1994. The emission estimates are provided for information purposes only. They are not included in the economic analysis since no value or cost is put on these emissions.

Quick Input (QI)

The new *Quick Input (QI)* program makes full LCC analysis as easy as calculating simple payback. It is included on the BLCC diskette and can be used to set up multiple project alternatives for LCC analysis in a single input file. *QI* provides a convenient method for solving relatively simple LCC problems, which require finding the lowest-LCC design alternative among many mutually exclusive alternatives for the same project or for screening large numbers of projects.

DISCOUNT

A stand-alone program called *DISCOUNT* is included on the BLCC diskette to perform the individual discounting operations required in the life-cycle cost analysis. *DISCOUNT* can access DOE projections of energy price increases used in the BLCC program and compute the present value of annual energy costs which are expected to increase over time at these projected rates.

ERATES

ERATES is a separate stand-alone program that can be used for generating block-rate, time-of-use-rate, and demand-rate schedules for electricity prices. *BLCC* and *QI* can compute annual kW demand charges with monthly demand schedules imported from *ERATES*.

A hard copy of the *Energy Prices and Discount Factors for Life-Cycle Cost Analysis 1995* (NISTR 85-3273-9), which was revised October 1, 1994, is also available. Single copies of *BLCC version 4.2-95* and *ERATES* will be distributed on 3.5" high-density disks to the Federal sector upon request. Copies of the *Energy Prices and Discount Factors for Life-Cycle Cost Analysis 1995* are also available upon request.

Federal energy managers can obtain these programs free of charge from:

EASI/ASI
1525 Wilson Boulevard, Suite 1200
Arlington, VA 22209
703-243-4900
(Ask for Toni Patterson)

MOTORMASTER 2.2 SOFTWARE HAS BLCC QUICK INPUT CAPABILITY

The MotorMaster software, developed by the Washington State Energy Office with funding support from the Bonneville Power Administration and DOE, consists of a motor price and performance database and an energy conservation analysis report. Designed for utility auditors, facility managers, and consulting engineers, Motormaster can be queried to identify the most efficient motor(s) for a given application and compute the energy and demand savings associated with selection of an energy efficient motor over a standard model.

MotorMaster 2.2 now features the ability to write to a Building Life Cycle Cost (BLCC 4.2-95) Quick Input file (MOTOR.QI). When the [F5] print key is pressed from the Compare Results screen, a Quick Input record for the selected motor is appended to the MOTOR.QI file. The Quick Input program allows a maximum of 200 input records. With Quick Input, the Motormaster data can be used as input to BLCC 4.2-95 and meets all the Executive Order 12902 requirements for FEMP projects.

MotorMaster includes:

- A database of performance and price information on more than 11,000 motors from all major manufacturers.
- Technical data that can help optimize a drive system, such as part-load efficiency and power factor, full load speed, torque and voltage.
- Purchase information: list price, warranty, catalogue number, and manufacturer's address.
- Analysis features that calculate the energy savings, dollar savings, and simple payback from using a particular motor in a new purchase or retrofit application.
- Utility rebate program data, which includes minimum qualifying efficiency and rebate dollar values.

MotorMaster runs on any IBM-compatible computer with a hard disk. It requires DOS 3.3 or higher, about 3.6 MB of free disk space and 640 KB of free memory.

The cost of MotorMaster is \$108 per calendar year for Washington State residents; \$100 outside Washington State. For more information, contact the Washington State Energy Office, (Motors), P.O. Box 43165, Olympia, WA 98504-3165; telephone: 206-956-2215.

DOE DISTRIBUTES LIGHTING SOFTWARE

The Department of Energy has developed, as part of its Federal Relighting Initiative, the Lighting System Screening Tool (LSST), the Lighting Technology Screening Matrix (LTSM), and the Federal Lighting Energy Expert (FLEX). The main objective of the FRI is to relight all Federal facilities with life-cycle cost-effective lighting technologies. To help meet this objective, DOE has developed tools and methods to create a process that will enable Federal energy managers to perform the analysis, selection, design, installation, and evaluation of high-quality and cost-effective lighting technologies.

The LSST has two analysis levels that are used to screen a list of buildings and prioritize them according to the greatest potential for life-cycle cost reduction in lighting systems. The first analysis level simply requires the user to enter data about the buildings to be analyzed and then makes assumptions about the baseline lighting types and operating characteristics for each building, based on the building type. The second analysis level of LSST, conducted after a walk-through audit of the building's lighting, requests additional information on the actual existing technologies in the building, their densities in up to five user-defined building areas, and their operating hours.

The LTSM operates at the fixture level, as opposed to the building level. It is designed to determine whether there is likely to be a cost-effective lighting-efficient resource for a given type of technology under a given electricity price, utility rebate level, and operating parameter. LTSM is a preliminary screening tool. It is used as part of the overall FRI toolkit to determine if any generic technologies demonstrate potential for cost-effective relighting.

The FLEX program is designed as an expert system for screening lighting projects and provides an existing lighting characterization, retrofit analysis, extensive help materials, and a graphical user interface. The lighting characterization tool can be used to survey buildings and can be applied to anything from a single room to multi-building complexes. FLEX also performs complete Illuminating Engineers Society zonal cavity lighting calculations for each defined room and contains a complete set of the required life-cycle cost economics for Federal relighting projects.

FEDERAL RELIGHTING INITIATIVE ACTIVITIES FOR FY 1995

The objective of the FEMP Federal Relighting Initiative (FRI) is to provide a comprehensive "tool kit" for Federal energy managers to properly relight all Federal facilities. This tool kit includes tools and information to help managers replace their existing lighting systems with energy efficient systems that are life-cycle cost-effective.

The Federal sector has over 500,000 buildings and facilities that utilize about 60 million lamps, ballasts and fixtures. In FY 1992, the energy consumption for these buildings was approximately 412.6 trillion Btu, and cost about \$3.65 billion.

The Federal Relighting Initiative's tool kit will help Federal agencies meet the requirement of a 30 percent reduction in Federal energy use by the year 2005, as required in Executive Order 12902. The tool kit includes several key elements to help Federal facility managers meet this goal. These include:

- Technical Assistance
- Lighting Product and Specification Information
- Training Courses and Workshops
- Energy Awareness Program Development
- Analytical Software Packages
- Lighting Equipment
- Market Assessments
- Utility Rebate Source Lists
- Procurement Guidance

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Federal energy managers are encouraged to use the FLEX tool, lighting design professionals, and the Master Specifications to assist them in actual relighting design and the final specification of specific technologies.

To order copies of LSST, LTSM, or FLEX, Federal energy managers may contact Toni Patterson, EASI/ASI, at 703-243-4900. For additional information on the FRI tools, contact Louis Harris of FEMP, at 202-586-9794.

FRI ACTIVITIES FOR FY 1995*Continued from page 8*

These elements are designed to assist in reducing individual facility energy consumption as well as reducing the overall Federal consumption.

The three major thrusts of the FRI program involve the following:

- Complete system vs. component replacement
- Whole facility analysis
- Quality lighting

Using a comprehensive approach to energy efficiency projects, lighting is just the first step of a whole facility analysis that also includes HVAC systems, glazing, building envelope, operations and maintenance, and facility renovation plans. This program helps managers consider and analyze all of these criteria so the optimal solution can be developed.

FEMP's FRI focuses on lighting quality. Improved lighting quality creates a productive work environment. It is hard to quantify the impact of lighting quality, however, it is generally recognized throughout the lighting industry that the benefits from employee satisfaction and a positive work environment far exceed the energy and cost savings.

FRI activities for FY 95 include:

- Distribution of the master lighting specifications;
- Conducting the following training workshops:
January 31 - February 2; Philadelphia, PA
March 14 - 16; Los Angeles, CA
April 25 - 27; Kansas City, MO
May 17 - 19; Rockville, MD
June 28 - 30; Chicago, IL
August 8 - 10; Charlotte, NC
September 19 - 21; Denver, CO
- Distribution of the lighting software tools which include the Federal Lighting Energy Expert (FLEX);
- Completion and distribution of FEMP relighting projects case studies.

For further information please contact the FEMP HELP DESK at 1-800-566-2877 or Louis Harris of FEMP at 202-586-9794.

**U.S. ARMY LAB DEVELOPS
RENEWABLES AND ENERGY
EFFICIENCY PLANNING TOOL**

The U.S. Army Construction Engineering Research Laboratory has developed a computer program to determine potential energy savings and costs for installations. The Renewables and Energy Efficiency Planning Program (REEP) allows for the analysis of 83 Energy Conservation Opportunities (ECOs) at 239 DoD installations. The program has eight basic categories of ECOs:

• lighting;	• electrical;
• building envelope;	• water;
• HVAC;	• utilities;
• renewables; and	• miscellaneous.

The ECOs are evaluated for their energy savings potential, financial viability, and pollution abatement potential. The core of the program consists of a database that has over 100 entries of specific data for each Army installation and a set of algorithms for each ECO. The program user selects the ECO(s) of interest and the program evaluates the ECO(s) at user-selected installations using the installation-specific data.

Installation-specific data includes thousands of square feet for ten different building types, weather information, capacities of heating and cooling equipment, utility rate information, and much more. The financial portion of the evaluation performs an Energy Conservation Investment Program analysis resulting in such economic evaluators as simple payback, savings-to-investment ratio, and adjusted internal rate of return. The pollution portion of the program calculates the tonnage of six different types of pollutants that would be abated based on how much energy an ECO would conserve, and regional characteristics of how electricity is produced.

The REEP program is a user-friendly computer program that can be used by both installation energy managers and budget analysts. It is a useful tool for gaining a broad overview of the energy savings potential and associated economics at an installation level. It is not intended to be used as a tool to evaluate individual ECOs at individual buildings. However, the program has been designed to be extremely malleable, and can, to a limited extent, be used in such fashion. REEP's strong points are its ease of use, comprehensiveness as to ECOs evaluated, flexibility, and extensive on-line help. For more information on REEP contact Robert Nemeth of CERL at 217-373-3395.

FEMP Focus

FEMP PARTICIPATES IN ANNUAL ENERGY EFFICIENCY FORUM

Mark Ginsberg, Director of the Office of Federal Energy Management Programs, addressed the Fifth Annual Johnson Controls/United States Energy Association Energy Efficiency Forum on October 4, 1994 in Washington, D.C. He spoke about the *Federal Energy and Water Management Awards Program* and its contribution to increased energy efficiency and water management in the Federal Sector.

Mr. Ginsberg introduced three 1994 Awardees who spoke on Award-winning energy and water management initiatives at the General Services Administration and the Departments of Defense and Energy. The Forum brought together public and private energy leaders from around the world to discuss domestic and international energy management strategies.

The following reports were also released at the Forum:

- 1) *Profiting From Energy Efficiency! A Financing Handbook for Municipalities*, published by the International Council for Local Environmental Initiatives; and
- 2) *Energy Efficiency and Economic Indicators: Charting Improvements in the Economy and the Environment*, published by the American Council for an Energy-Efficient Economy (ACEEE).

ACEEE introduced "Energy Freedom Day" as a simple benchmark to track the single day each year when people's incomes would have fully paid their annual energy bill.

For more information on these reports, or on the Forum itself, contact Mr. John A. Bernaden at 414-274-4546.

FEDS—DECISION-MAKING SOFTWARE FOR ENERGY EFFICIENCY

The FEDS 2.1 software tool now runs in Microsoft® Windows. Developed by the Pacific Northwest Laboratory for FEMP, FEDS 2.1 provides a comprehensive method for quickly and objectively identifying energy improvements that offer maximum savings. It provides an easy-to-use tool for identifying retrofits, selecting minimum life-cycle costs, determining payback, and enabling users to prioritize options on a fuel neutral basis.

Using readily available information, FEDS screens and compares the energy-saving potential of different facilities. It also features an interactive format, peak-demand modeling, and analyses that can include site-specific data or plausible site projections of information. FEDS reduces time and labor required to collect and analyze data, provides a consistent basis for decision-making on retrofit options, delivers sufficient information for writing project funding proposals, allows easy access to site data files for updating and record keeping, serves as an integral part of a cost-savings program, and calculates lowest life-cycle and cost-effective energy systems for all building types.

FEDS determines the optimum set of cost-effective retrofits from a current database of hundreds of proven technologies. These include retrofits for heating, cooling, lighting, building shell, and hot water. Replacement or modification of the equipment for a retrofit operation varies from complete replacement to functional enhancements to fuel switching.

FEDS relies on a minimum of user interactions and input to operate. It begins with entry of readily-available energy data and building information such as location, consumption, energy price data, building types, characteristics, and operating hours, and utility incentives.

From this information, FEDS develops a building prototype and inferred engineering parameters. It calculates electrical demand and energy consumption and determines the cost effectiveness of potential retrofits. Thus, FEDS allows detailed analysis of large facilities with many buildings, but only requires a limited amount of information.

FEDS provides the user with the engineering parameters necessary to perform a comprehensive analysis. For example, a review of results might reveal a need for refinement of inferred parameters. If better information is available, changes to the inferences are easily accomplished. In addition, a site-specific, detailed analysis can be performed by tailoring buildings to best fit size and age combinations that exist on the facility.

FEDS provides a unique set of capabilities:

Life-Cycle Cost Optimization—it selects the minimum life-cycle cost retrofit for a single, building or an entire facility.

Technology and Fuel Independence—it chooses the retrofit technology that provides the required service at the minimum life-cycle cost.

Peak Demand Tracking—it determines the hourly contribution of each technology in buildings to the facility's peak demand.

Continued on page 12

Introducing the U.S. General Services Administration's New Handbook Water Management: A Comprehensive Approach for Facility Managers

The first comprehensive water management handbook designed for government use.

Helps facility managers comply with the Federal Energy Policy Act of 1992 and the 1994 Executive Order "Energy Efficiency and Water Conservation at Federal Facilities."

Discusses current water usage in Federal facilities and the best water management operation, maintenance, retrofit, and replacement options available.

Explores water savings available for plumbing products, heating, ventilating and air-conditioning equipment, landscape irrigation, and on-site wastewater recycling.

Explains how you can develop a water management plan for your facility using life cycle cost analysis and sample water survey worksheets.

Provides many helpful tips to assist you in implementing and monitoring your water management program and conducting an education campaign for your building tenants.

See why this handbook is being used throughout more than 7,000 GSA facilities and by the Department of Energy in its Water Resource Management Workshop, which was developed by the Federal Energy Management Program and Pacific Northwest Laboratory.

For information on how you can obtain copies of this manual or customize it for use in your own agency, contact Linda Hsu-Harris at Enviro-Management & Research, Inc. at (703) 875-2800 ext. 12.

FEMP OFFERS NEW AND IMPROVED HELP DESK

To better accommodate its customers, FEMP has authorized the acquisition of an automated phone answering system for the FEMP Help Desk.

The FEMP Help Desk has experienced a rapid rise in the number of calls received each month since its establishment in February 1994. It is important to FEMP that its customers' questions, comments, and requests are addressed in an efficient and timely matter. Thus, the addition of the automated phone system triples the number of calls the Help Desk can answer at one time, offers 24-hour service, automatically transfers callers to appropriate offices, and has numerous mail boxes for customer requests, comments, and questions.

The automated phone system is menu driven and operated by pressing corresponding numbers on the phone set for specific information. Callers who wish to bypass the automated system, or are unable to use this system due to technical difficulties, or whose questions are not adequately addressed always have the option of pressing 0 to talk to Help Desk personnel.

This system is easy to manage and offers the potential to add and/or change messages and announcements quickly and efficiently.

FEMP is very interested in the opinions of its customers. Call the Help Desk at 800-566-2877 and tell us what you think of the new automated phone system. Your comments, questions, and suggestions are very important and will help us better serve you in the future.

FEMP INFORMATION ONLINE

To better serve its customers FEMP has constructed an electronic information file on the Internet. Users can now download software, publications, and articles instantly. This information file is contained in a gopher space menu. To access this menu and FEMP materials users can select either Telnet or URL protocols to connect to the root directory:

!telnet gopher gopher.tmn.com (Telnet)

http://www.tmn.com (URL)

If you have any questions, comments, or suggestions please email femp@tmn.com or call the FEMP Help Desk at 800-566-2877.

FEMP CONSIDERS NEW CATEGORIES FOR 1995 AWARDS PROGRAM

The Federal Energy Management Program Office is currently considering categories for the 1995 Federal Energy and Water Management Awards. These awards recognize outstanding contributions by Federal agency organizations, teams and individuals in energy efficiency, renewable energy, and water conservation.

Awardees will be honored at ceremonies in Washington, D.C. during Energy Awareness Month in October of 1995. In addition, individual awardees and members of small groups are eligible for cash awards. During the recently concluded 1994 awards process, awardees in the individual and small group categories individually received from \$2,000 to \$10,000 in cash awards.

Categories being considered for 1995 include awards for Energy Savings Performance Contracts or Shared Energy Savings Contracts, Mobility Energy Savings for Aircraft, Ships or Vehicle Energy Savings, Building or Facility Energy Efficiency, Building or Facility Water Conservation, and Renewable Energy Utilization. Other categories may be included with the formal announcement and call for nominations which should be issued in January of 1995. For more information contact Ms. Nellie Tibbs of FEMP at 202-586-7875.

FEDS SOFTWARE

Continued from page 10

Workshops on FEDS are offered by FEMP, to provide hands-on experience and in-depth information on the software.

For more information about FEDS software, call:

Rosemarie Bartlett,
FEDS Information Administrator
Pacific Northwest Laboratory
P.O. Box 999
Richland, WA 99352
509-375-6606; FAX 509-375-3970
r_bartlett@pnl.gov

For additional information about workshops and FEDS training contact:

Cindy M. Griswold,
PNL FEMP Workshops Administrator
Pacific Northwest Laboratory
P.O. Box 999
Richland, WA 99352
509-372-4368; FAX 509-372-4990
cm_griswold@pnl.gov

FEMP PROMOTES FINANCING TO IMPLEMENT PROJECTS*Continued from page 1*

The Federal Utility Partnership Working Group, formed by FEMP, is an example of a partnership utilized to maximize opportunities for energy and water resources management. The Working Group brings together personnel from utilities from around the country that have been active in working with Federal agencies to replicate successful, mutually-beneficial utility/Federal partnerships and identify innovative methods to overcome barriers that have prevented Federal/utility collaboration. The goal of the Working Group is to "*Develop Successful Strategies for a Competitive Environment.*"

The objectives of the Working Group include (1) enhancing the partnership between Federal facilities and utilities; (2) identifying how utilities and Federal agencies can work together to meet the goals of the Energy Policy Act of 1992 and Executive Order 12902; (3) developing a Federal/utility communication mechanism that transfers success stories, lessons learned, and challenges; and, (4) adapting the Federal sector to the rapidly changing energy efficiency, and utility industry. The six subcommittees formed by the Group are Training, New Utility Environment and Services, Audits, New Building and Showcases, Communication and Marketing, and Partnerships and Procurement.

At the last Working Group meeting several initiatives were launched, including a database of Federal contacts by agency and region, strengthening the link between Federal energy managers and industry trade allies through conferences, and convening a series of Federal/utility forums to create strategies to overcome barriers that hinder the development of Federal energy efficiency projects in a competitive environment. The members of the Working Group include American Gas Association, American Public Power Association, Baltimore Gas and Electric, Bonneville Power Administration, Consolidated Edison, Edison Electric Institute, Electric Power Research Institute, Entergy, Florida Power and Light, Gas Research Institute, Georgia Power, New England Electric, Northern States Power, Niagara Mohawk Power Company, PacifiCorp, Pacific Gas and Electric, Philadelphia Electric, Potomac Electric Power Company, Public Service Company of Colorado, San Diego Gas and Electric, Southern California Edison, Tacoma Public Utilities, Texas Utilities and the Western Area Power Administration.

If you would like more information on the Working Group please call Louis Harris of FEMP at 202-586-9794.

TEAMBUILDING AND PARTNERSHIPS ARE FOCUS OF GSA DENVER CONFERENCE

Approximately 150 Federal energy managers, utility representatives, energy service companies, and other professionals attended the General Services Administration's energy management conference in Denver in September. As part of the GSA's statutory requirements under the Energy Policy Act of 1992, the conference showcased successful projects by Federal state, and municipal entities. With a teambuilding focus, conference presentations illustrated that Federal agencies, utilities, energy service companies, national laboratories, and others can work together effectively to meet Federal energy efficiency goals. Workshop participants received a copy of the *FEMP Fast-Track Example Handbook on Energy Project Teambuilding*, a recent FEMP report providing salient project examples and easy-to-use project catalyst and development tools.

For a copy of the handbook call Randy Jones, FEMP liaison, Denver Regional Support Office, at 303-231-5750, ext. 135.

FEMP RECRUITING FOR REGIONAL ENERGY ACTION PROJECT TEAM POSITIONS

FEMP is searching for qualified professionals with experience in energy and water conservation, solar and renewable energy technologies, and project financing and implementation. To accelerate the number and quality of energy saving projects regionally, FEMP is establishing action teams at regional locations such as Department of Energy Support Offices. FEMP will train two professionals (per team) to identify, nurture, and close projects with agencies. Teams would be knowledgeable in Federal energy management and procurement requirements, agency appropriations, energy savings performance contracting, utility incentives, the Federal Energy Efficiency Fund, private sector and State partnerships, measurement, and technical resources available from FEMP, DOE, and EPA programs, and the National Labs. They would be responsible to FEMP and work in cooperation with Regional Support Office staff and agencies. Interested candidates should mail resumes to: FEMP, EE-90, Room 5E-080, U.S. DOE, 1000 Independence Avenue, SW, Washington, DC 20585, Attn.: Judith A. Florance.

FEDERAL EFFORTS FEATURED AT AIA SUSTAINABLE DEVELOPMENT SYMPOSIUM

The American Institute of Architects, Committee on the Environment, presented a Global Symposium on Sustainable Environments in New York on October 22nd and 23rd, 1994.

Christine A. Ervin, Assistant Secretary of Energy Efficiency and Renewable Energy at the Department of Energy, spoke about practicing sustainable development. She informed the group on expanding efforts to rebuild sustainable communities along the Mississippi flood plain, and to other communities, including the Presidio in California. Assistant Secretary Ervin also noted a need to make practical choices that minimize risk.

Another method of practicing sustainable development is to provide alternate models and technologies to other countries. The Assistant Secretary cited the possibilities of introducing PV power in villages in India, and energy legislation in Moscow.

Mark Ginsberg, Director of the Federal Energy Management Program, spoke about the Greening of the White House initiative and how it provides leadership, a process, and ways to transfer that process to other buildings. He emphasized that the participants in the Symposium were the key to incorporating these elements into designs for buildings and other environments around the world. He also mentioned other Federal efforts to incorporate energy efficiency and environmentally sound practices at other Federal agencies, including the Departments of Energy, Interior, and Defense.

Mr. Ginsberg suggested that additional opportunities lie with all houses across America. He had participated in a ceremony the previous week where an energy efficient compact fluorescent light bulb was transferred from the White House to a Habitat for Humanity house in Raleigh, North Carolina to encourage energy efficient and environmentally sound efforts in all houses. For a Habitat House, energy efficient design should make that house use \$70 per month in electric energy compared to \$105 for a less efficient Habitat House or \$130 for a similar house in the area. He noted other transfer mechanisms which included a CD-ROM program under development for release next year.

For more information on the AIA Symposium, please contact Anne Sprunt Crawley of FEMP at 202-586-1505.

ENERGY IDEAS CLEARINGHOUSE BULLETIN BOARD SERVES ENERGY PROFESSIONALS

Want to know how others are addressing energy issues? Contact the Energy Ideas Clearinghouse Bulletin Board Service (EICBBS). This BBS, managed by the Washington State Energy Office, offers a channel for sharing information on commercial and industrial energy efficiency, renewable energy, and environmental issues.

EICBBS users can discuss problems and solutions with other professionals in more than 50 discussion groups. These discussion groups, called forums, cover such topics as heating, ventilation, and air-conditioning, lighting, motors, building codes, and renewable energy.

In addition, the EICBBS offers electronic mail and facsimile services, software and files for downloading, and a training calendar. Users share messages with those on the Internet and the Michigan Energy and Regulatory Matters BBS.

You can access the EICBBS by modem or on the Internet 24 hours a day. To log onto the BBS dial:

800-762-3319 for Pacific northwest states
800-797-7584 for other western states
206-586-6854 for other states
eicbbs.wseo.wa.gov for the Internet.

The bulletin board is funded by the Bonneville Power Administration, the U.S. Department of Energy's Institutional Conservation and Motor Challenge Programs, Western Area Power Administration, and the National Rural Economic Development Partnership.

For additional information, call 206-956-2237 weekdays between 8 a.m. and 5 p.m. Pacific time.

FEMP HELP DESK
800 - 566 - 2877

Available
Monday through Friday
9:00 a.m. to 5:00 p.m. EST

DOE OFFICE OF CODES AND STANDARDS ISSUES USERS GUIDE TO PERFORMANCE STANDARDS

The Department of Energy's Office of Codes and Standards has developed a *Federal User's Manual* to assist the Federal sector in compliance with the *Performance Standards for New Commercial and Multi-Family High-Rise Residential Buildings*. The document was prepared by Eley Associates under contract to Pacific Northwest Laboratories, with funding from DOE. The manual was adapted from the *ASHRAE Standard 90.1-1989 User's Manual* with permission of the American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc.

The intention of the Federal Standard (Part 435, Chapter 11 of Title 10, Code of Federal Regulations (10CFR435) is to provide a set of guidelines for the energy efficient design of buildings and building systems. These guidelines are designed to promote the application of cost-effective design practices and technologies that minimize energy consumption and maximize the use of non-depletable energy sources without sacrificing either the comfort or productivity of the occupants.

The Federal Standard is extremely broad in scope, encompassing almost all new construction (except low-rise residential) in all climates across the United States. The requirements of the Federal Standard are both general and conservative. They do not represent the most cost-effective level of energy conservation for each and every project. The designer should consider these requirements as a starting point and is encouraged to consider the interrelationships of different building elements and systems and seek designs that exceed the Federal Standard. To this end, the Standard presents recommendations in addition to its requirements.

The Users Manual is divided into the 12 chapters listed below:

- Overview
- Principles of Effective Energy Efficient Building Design
- Lighting
- Auxiliary Systems and Equipment
- Building Envelope
- Electric Power and Distribution
- HVAC Systems
- HVAC Equipment
- Service Water Heating Systems
- Energy Management
- Energy Cost Compliance Alternative
- Energy Budget Method

It also includes extensive tables, figures, examples, and definitions to assist the user.

For additional information, or to order a copy of the *User's Manual*, please contact Mr. Ron Majette, DOE Office of Buildings and Standards, at 202-586-7935.

DLA RELEASES UPDATED PRICE LIST FOR ENERGY EFFICIENT LIGHTING CATALOG

The Defense Logistics Agency has issued the updated price list, effective October 1, 1994, for the *Energy Efficient Lighting Catalog*. The catalog includes information on ballasts, fixtures, and bulbs. It is designed so that Federal customers can easily determine which energy efficient lighting product they need, and then, can place an order with minimum effort.

As an improvement to the February 1994 catalog, this updated list includes the unit of measure or the quantity contained in each box or package. On the most frequently ordered items, DLA awards one-year contracts with four one-year options with the various manufacturers and distributors. These are known as Paperless Ordering Placement System (POPS) contracts. The Defense General Supply Center is publishing a catalog to identify items currently on POPS. To be included in this mailing or to obtain information, please call 1-800-345-6333 or DSN 695-4490. There is also a POPS Bulletin Board which is updated as additional items are added to these long-term contracts. You may access the Bulletin Board by calling 804-279-4279.

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