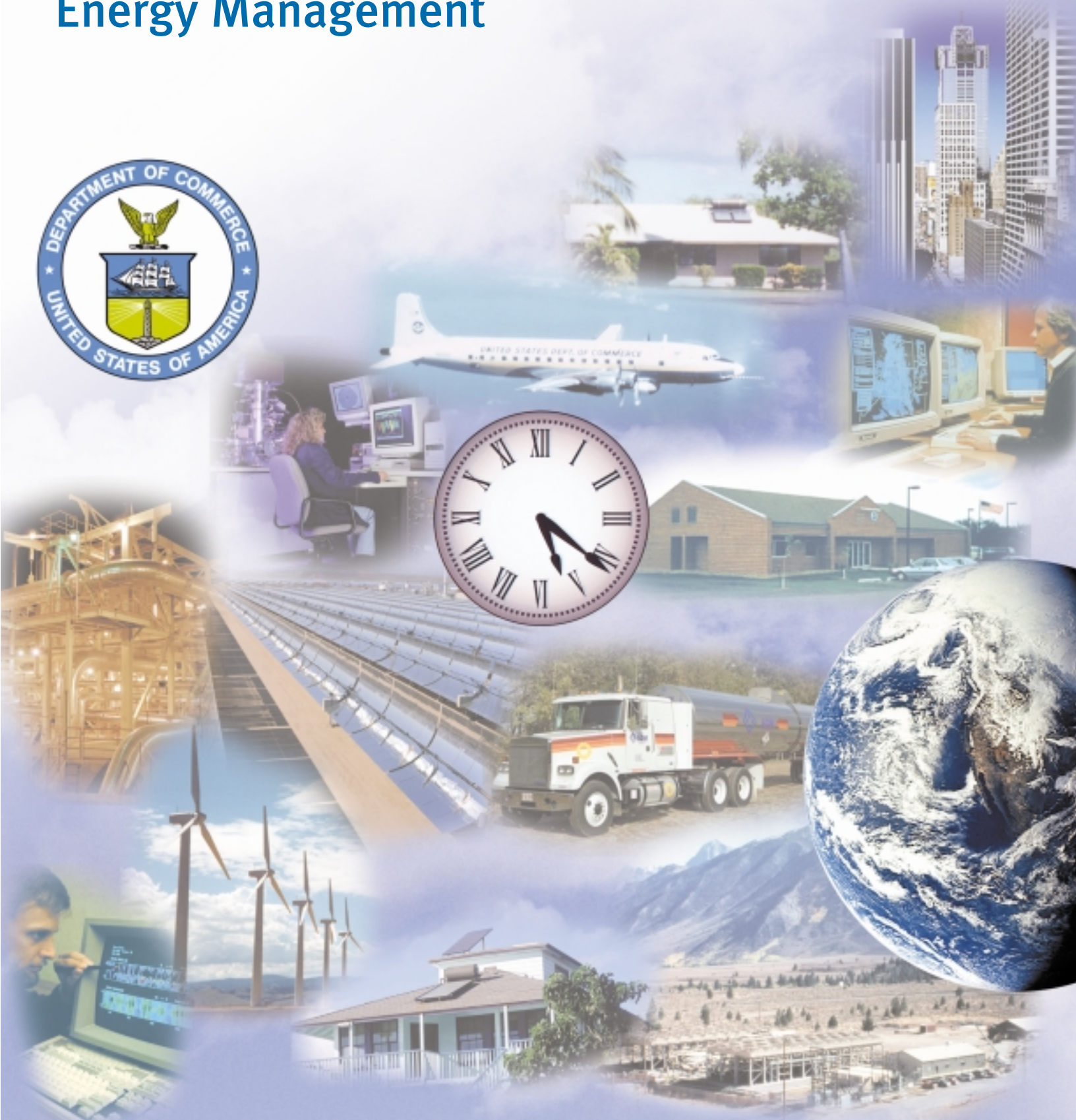
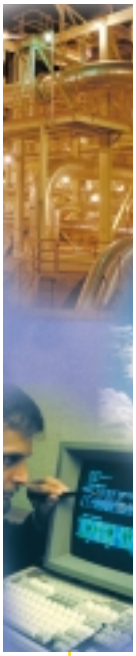
Department of Commerce Strategic Implementation Plan for Energy Management





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On The Cover: The Department of Commerce touches the daily lives of Americans in many ways—it makes the weather report possible every morning; it assists the world in maintaining a single, uniform time system; it facilitates technology that Americans use in the workplace and home every day; it supports the development, gathering, and transmitting of information essential to competitive business; it makes possible the diversity of companies and goods found in America's (and the world's) marketplaces; it supports environmental and economic health for the communities in which Americans live; and it conducts the constitutionally mandated census, which is the basis of a representative democracy.

Introduction

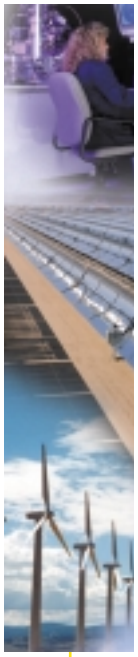
The mission of the U.S. Department of Commerce is to provide effective management and stewardship of the nation's resources and assets to ensure sustainable economic opportunities.

The U.S. Government is the largest consumer of energy in the world. Thus, there are many opportunities in the Federal sector to reduce energy consumption through sound conservation practices and the greater use of advanced energy systems. Accordingly, Federal agencies have been directed by legislation and by executive order to better manage their energy use and to make use of cost-effective alternative fuels and renewable energy. Effective energy management in Federal facilities means a better work environment for employees and increased productivity. Furthermore, when Federal agencies meet their energy goals, more tax dollars are saved for all Americans.

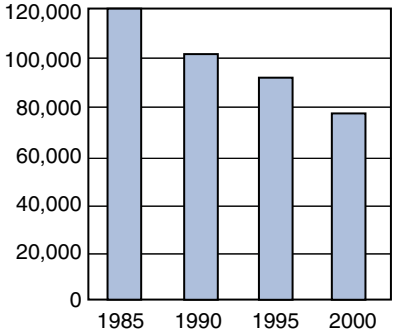
The U.S. Department of Commerce includes a wide variety of individual bureaus that collectively have a powerful role in the U.S. economy. Our activities and bureaus promote economic growth through improved technology, sustainable development, increased trade, and information analysis. Our bureaus, with responsibility for energy and water management in Federal facilities, include the Herbert C. Hoover Building (Headquarters), National Oceanic and Atmospheric Administration (NOAA), National Institute of Standards and Technology (NIST), and Bureau of the Census.

In fiscal year (FY) 2000, we reported having achieved a 34 percent reduction in energy usage in our standard buildings in comparison to baseline FY 1985 levels (see first chart). We reported energy consumption in two categories: (1) standard buildings/facilities, and (2) industrial, laboratory, and research facilities (see second chart). It is noteworthy that we did not exempt any facilities from the requirements of Executive Order 13123, *Greening the Government Through Efficient Energy Management*.

This implementation plan outlines the strategies that we at Commerce have proposed to achieve our goals for greater energy and water efficiency.



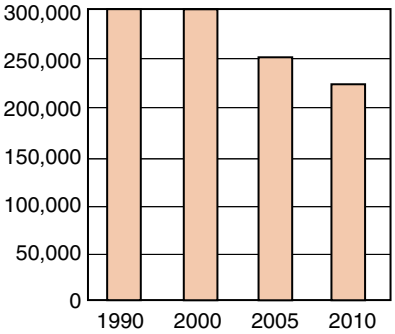
Performance Results for Commerce: Standard Buildings/Facilities



FY1985 Baseline = 119,476 Btu/gsf

FY 2000 Actual = 78,811 Btu/gsf

Performance Goals for Commerce: Industrial/Laboratory Facilities



FY1990 Baseline = 299,000 Btu/gsf

FY 2000 Actual = 299,000 Btu/gsf

FY 2010 25% Goal = 224,250 Btu/gsf

Goals of the Order

Executive Order (E.O.) 13123, *Greening the Government Through Efficient Energy Management*, directs the Federal Government to take a leadership role in energy management by significantly reducing energy use in order to save taxpayer dollars and reduce emissions that contribute to air pollution and global climate change. This order builds on work begun under the Energy Policy Act of 1992 (EPACT) and earlier executive orders.

In addition, E.O. 13123 directs agencies to conserve water and to use more cost-effective renewable energy technologies, which include solar, wind, geothermal, and biomass energy systems. The order also requires agencies to develop implementation plans for fulfilling the goals of the order and reducing overall Federal energy consumption.

Specific goals of the order include the following:

- **Section 201 — Greenhouse Gas Reduction —** Through cost-effective measures (based on life-cycle costs), each agency shall reduce greenhouse gas emissions attributed to facility energy use by 30 percent by 2010 in comparison to emissions levels in 1990.
- **Section 202 — Energy Efficiency Improvements —** Through life-cycle cost-effective measures, each agency shall reduce energy consumption per gross square foot of its facilities, excluding facilities covered in Section 203 of the order, by 30 percent by 2005 and 35 percent by 2010 relative to 1985 energy-use levels.
- **Section 203 — Industrial and Laboratory Facilities —** Through life-cycle cost-effective measures, each agency shall reduce energy consumption per gross square foot, per unit of production, or per unit, as applicable, by 20 percent by 2005 and 25 percent by 2010 relative to 1990 levels.
- **Section 204 — Renewable Energy —** The Federal Government shall strive to have the equivalent of 2.5 percent of facilities' electricity consumption come from new renewable energy sources by 2005. New renewable energy would include renewable energy acquired by the Federal Government after 1990. In support of the Million Solar Roofs Initiative, the Federal Government shall strive to install 20,000 solar energy systems by 2010.
- **Section 205 — Petroleum Reduction —** Through life-cycle cost-effective measures, each agency shall reduce the use of petroleum in its facilities. Agencies may accomplish this reduction by switching to a less greenhouse-gas-intensive, nonpetroleum energy source, such as natural gas or renewable energy sources; by eliminating unnecessary fuel use; or by other appropriate methods.
- **Section 206 — Source Energy —** The Federal Government shall strive to reduce total energy use and associated greenhouse gas and other air emissions, as measured at the source. To that end, agencies shall undertake life-cycle cost-effective projects in which source energy decreases, even if energy use increases at a particular site.
- **Section 207 — Water Conservation —** Federal agencies are to develop and implement water management plans and Best Management Practices in 5 percent of their facilities by 2002, 15 percent by 2004, 30 percent by 2006, 50 percent by 2008, and 80 percent by 2010.

We have developed this *Strategic Implementation Plan for Energy Management* to ensure that these goals are accomplished in our facilities and that all the attendant benefits are realized. These benefits include the cost savings associated with reduced energy and water use, fewer and simpler requirements for operations and maintenance, and improvements in the indoor environment, which often result in greater productivity, as well as basic improvements in our mission operations. Another, but no less important, benefit is the significant reduction in greenhouse gas emissions obtainable when agencies use less conventional energy and more alternative and renewable energy sources.

"We can promote alternative energy sources and conservation, and we must."

— President George W. Bush, February 27, 2001

Management

Program Administration

Executive Order 13123 requires the following basic management and administrative elements:

- **Section 304** directs that each agency shall designate a senior official, at the Assistant Secretary level or above, to be responsible for meeting the goals and requirements of the order.
- **Section 305** directs that each agency shall form a technical support team consisting of appropriate procurement, legal, budget, management, and technical representatives to expedite and encourage the agency's use of appropriations, Energy Savings Performance Contracts (ESPCs), and other alternative financing mechanisms necessary to meet the goals and requirements of the order.

The energy management infrastructure supporting our strategic energy management implementation plan follows.

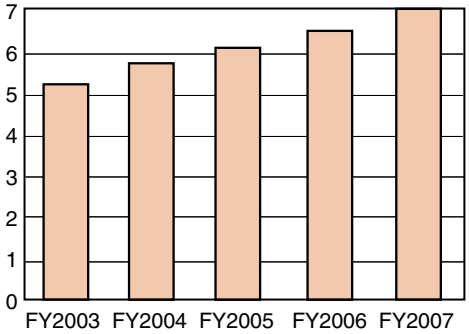
The Senior Official of our Agency Energy Team is the Chief Financial Officer and Assistant Secretary for Administration. This senior official will ensure that (1) the annual energy report to the President is completed and delivered on time, (2) the official or a representative attends the Interagency Energy Policy Committee meetings, and (3) all actions under this strategic energy management implementation plan are accomplished to meet the goals of the executive order.

Our Agency Energy Team will continually monitor the progress of the agency in implementing specific actions of the plan and advise the Senior Agency Official of any action that should be taken to provide Commerce personnel with the training and resources necessary to ensure successful implementation.

Program Budget Support

Section 301 of the Executive Order states that each agency's budget submission to the Office of Management and Budget (OMB) "shall specifically request funding necessary to achieve the goals of the order. Budget submissions shall include the costs associated with encouraging the use of, administering, and fulfilling agency responsibilities under Energy Savings Performance Contracts, Utility Energy Services Contracts, and other contractual platforms for achieving conservation goals; implementing life-cycle cost-effective measures; procuring life-cycle cost-effective products; and constructing sustainably designed new buildings, among other energy costs."

Energy Conservation Measures Budget Request ($Million)

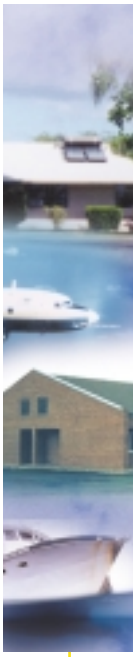


Program budget estimates

We will add a specific line item in all subsequent budget requests that will provide the resources needed to accomplish all of the initiatives, goals, and objectives of this implementation plan.

The Department's designated Agency Energy Team is made up of the following members:

Team Member	Program	Phone Number/E-Mail Address
Bernie Denno	NOAA, Chief, Environmental Compliance and Safety Division	(301) 713-2870 x 101 Bernie.Denno@noaa.gov
Douglas Elznic	NIST, Chief, Plant Division	(301) 975-6900 douglas.elznic@nist.gov
David T. Henry	NIST, Operations & Engineering Group	(301) 975-6947 david.henry@nist.gov
Mark Kuklewicz	NIST, Facilities Engineering Group	(301) 975-6918 mark.kuklewicz@nist.gov
Pauline Mallgrave	NIST, Supv. Contract Officer, Contracts Office	(301) 975-6330 pauline.mallgrave@nist.gov
Mike Sade	Commerce, Director, Acquisition Management	(202) 482-4248 msade@doc.gov
Jim Woods	Commerce, Acting Associate Director, Office of Real Estate Policy and Major Programs	(202) 482-3580 jwoods@doc.gov



Awards and Performance Evaluations

According to Sections 406a and 406b of E.O. 13123, agencies shall use employee incentive programs to reward exceptional performance in implementing the order. They shall also include successful implementation of provisions of the order in areas such as Energy Savings Performance Contracts, sustainable design, energy-efficient procurement, energy efficiency, water conservation, and renewable energy projects in the position descriptions and performance evaluations of agency heads, members of the agency energy team, principal program managers, heads of field offices, facility managers, energy managers, and other appropriate employees. We will take the following actions to meet this goal:

- ❑ Develop employee incentive awards for exemplary performance in implementing projects that help to meet the goals of the order and reduce energy consumption.
- ❑ Include successful implementation of the provisions of the order in the position descriptions and performance evaluations of all appropriate employees.

Training and Education

According to Section 406d of the order, agencies must ensure that all appropriate personnel receive training in implementing the order. Agencies are also required to develop outreach programs that include education, training, and the promotion and use of ENERGY STAR® and other energy-efficient products. Adequate training is essential for our Agency Energy Team to meet their goals and objectives. The following actions will be taken to meet this goal:

- ❑ Through the Agency Energy Team and other appropriate resources, provide training opportunities (especially in the areas of operations and maintenance management and project financing).
- ❑ Emphasize targeted awareness programs directed to occupants and operating and maintenance personnel, to explain the practical benefits of energy efficiency and what people can do personally to participate and make the implementation plan a success.
- ❑ Continue to participate in the U.S. Department of Energy (DOE) Federal Energy Management Program (FEMP) "You Have the Power" Campaign, in which agency personnel are recognized for their outstanding contributions to agency energy and cost savings (see also http://www.eren.doe.gov/femp/yhtp/commerce.html).
- ❑ The Agency Energy Team will periodically host or co-sponsor relevant conferences or training events and share lessons learned.

FEMP Director Beth Shearer (left) presents an Energy Saver Showcase Award to the Commerce Department's Jim Woods (center); White House official Shelly Fidler is on the right.

For more information, please see this Web site: http://www.eren.doe.gov/femp/resources/training/femptraining.html

Showcase Facilities

In Section 406e of the order, agencies are directed to designate exemplary new and existing facilities as Federal Energy Saver Showcases, which means that there must be adequate access to and information about these facilities so they can be models of efficiency for other agencies and help educate the public about their energy-saving features. These facilities should contain systems that represent some of the best applications of energy efficiency and renewable energy in the government, and they should show how each helps the entire government run more cost effectively and efficiently. We will meet this objective in the following way:

- ❑ Follow FEMP's criteria for Federal Energy Saver Showcase designation.
- ❑ Assign priorities to facilities on the basis of project quality, with special emphasis on sustainable design.
- ❑ Nominate at least one facility to be a Showcase each year to recognize its accomplishments.

For more information, please see this Web site: http://www.eren.doe.gov/femp/prodtech/fed_showcase.html

The Energy Saver Showcase at the NOAA Hawaiian Island Whale National Marine Sanctuary.

Strategic Implementation Strategies

Facility Energy Audits

Energy audits, or facility energy surveys, help agencies identify the most cost-effective projects for implementation in their facilities. Section 402 of E.O. 13123 directs that 10 percent of Federal agencies' facilities are to be audited for this purpose each year. We will meet this goal and strive to implement recommended energy efficiency measures through the following additional actions:

- ❑ Assign priorities to facilities that will receive audits on the basis of energy costs and the potential for emissions reductions.
- ❑ Whenever possible, cost-share audits with the FEMP SAVEnergy Program.
- ❑ Also make use of the audits available through ESPCs and Utility Energy Service Contracts (UESCs), when these are available.

For more information, please see these Web sites:
http://www.eren.doe.gov/femp/techassist/savenergyover.html
http://www.eren.doe.gov/femp/techassist/savenergyprog.html

A SAVEnergy auditor inspects a unit heater in a Federal facility.

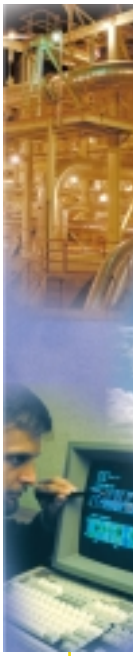
Life-Cycle Cost Analysis

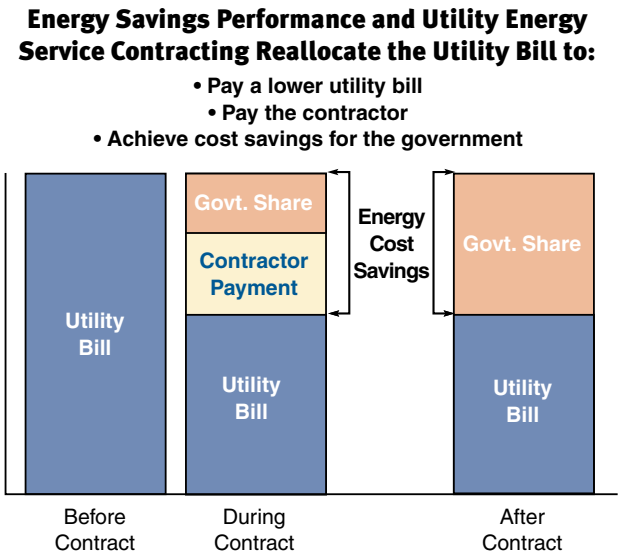
Linde Fuller, NIST, and her team are helping to save $1 billion in annual energy costs.

Under Section 401 of E.O. 13123, agencies are required to use life-cycle cost analysis to make good business decisions about their investments in energy-saving projects, products, services, and construction. This method is especially useful for evaluating the costs and benefits of energy and water conservation projects in Federal facilities. The Department of Commerce is also required to bundle energy efficiency projects with renewable energy projects wherever possible. The following actions are those we will take to improve life-cycle costs:

- ❑ In the next two years, identify appropriate Department personnel and provide them with the training they need to conduct life-cycle cost assessments; in particular, follow the guidance developed in the life-cycle cost program in use at NIST.
- ❑ Use life-cycle cost analysis in making decisions about our investments in products, services, construction, and other projects.
- ❑ Bundle energy efficiency projects with water conservation and renewable energy projects in order to increase the use of nonpolluting renewable energy systems throughout the Department.

For more information, please see this Web site:
http://www.eren.doe.gov/femp/techassist/softwaretools/softwaretools.html#blcc





Benefits of Energy Savings Performance Contracting and Utility Energy Service Contracts.

Project Financing

Section 403 of the Executive Order calls for agencies to maximize their use of alternative financing contracting mechanisms, such as ESPCs and UESCs, when they are life-cycle cost-effective, to reduce energy use and costs in their facilities. Accordingly, we will avoid the often high cost of waiting for appropriated funding by taking advantage of private-sector project financing, whenever it is possible and practical. We will use the following strategy in meeting this goal:

- ❑ Increase the number of energy efficiency, water efficiency, and renewable energy projects funded with private-sector financing.
- ❑ Ensure that Agency Energy Team members and other appropriate staff attend ESPC and utility financing workshops.
- ❑ Survey utility companies to determine if they have experience working with agencies on Federal Government projects.
- ❑ Develop a funding and financing strategy to implement cost-effective projects, including providing "seed" money for ESPC projects.
- ❑ Partner with local utilities and neighboring Federal agencies to leverage funds.

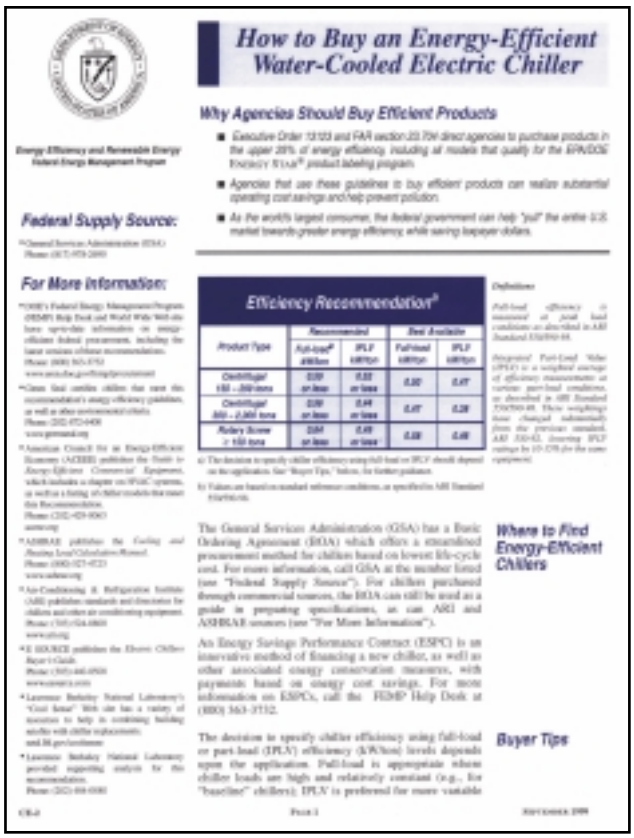
For more information, please see this Web site: http://www.eren.doe.gov/femp/financealt.html

Energy Star® Products

Section 403b of the order directs agencies to select ENERGY STAR® and other energy-efficient products. For some product groups, ENERGY STAR® labels are not yet available; in those cases, agencies shall select products that are in the top 25 percent of the most energy-efficient ones, as designated by FEMP. Therefore, we will meet this goal with the following actions:

- ❑ Incorporate energy-efficient criteria consistent with ENERGY STAR® and FEMP-designated energy efficiency products into all guidelines and specifications for new projects.
- ❑ Incorporate energy efficiency criteria consistent with ENERGY STAR® and FEMP-designated products into product specification language developed for Basic Ordering Agreements, Blanket Purchase Agreements, and other purchasing procedures.
- ❑ Work with FEMP to review Department of Commerce guidelines and specifications.

For more information, please see this Web site: http://www.eren.doe.gov/femp/procurement/.


How to Buy an Energy-Efficient Water-Cooled Electric Chiller

Why Agencies Should Buy Efficient Products

Federal Supply Source:

For More Information:

Efficiency Recommendation

Where to Find Energy-Efficient Chillers

Buyer Tips

An energy-efficient product guide.

Sustainable Building Design

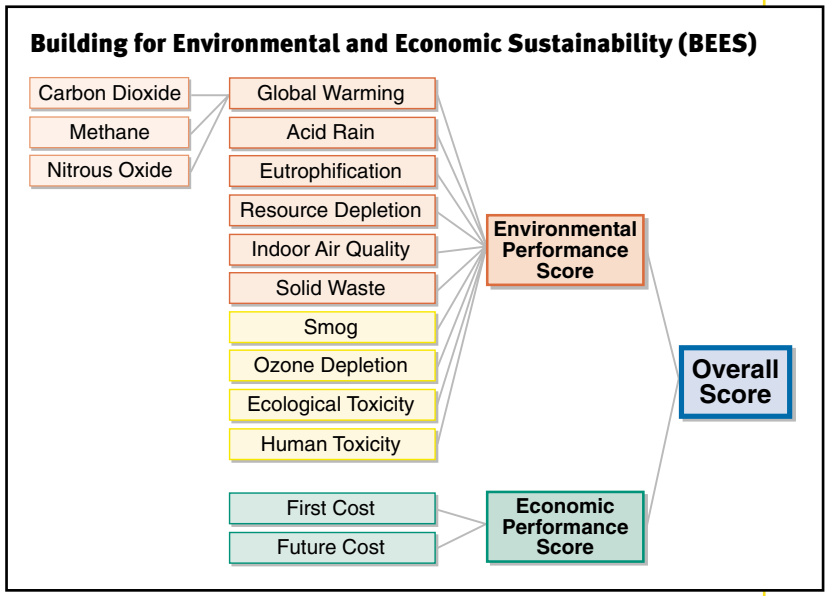
Sustainable building design embraces a "whole building" approach, in which the interdependence of a building's elements and systems is exploited to make the building as energy efficient as possible. Sustainable design recognizes the impact of every design choice (such as window placement and type of cooling system) on the natural and cultural resources of the local, regional, and global environment. Under Section 403d of the order, agencies are directed to apply sustainable design principles developed by DOE, the General Services Administration (GSA), and the Department of Defense (DOD). Accordingly, we shall:

- ❑ Incorporate sustainable design criteria into requirements for all new construction and major renovation projects, by using software such as Building for Environmental and Economic Sustainability (BEES), developed by NIST with assistance from the Environmental Protection Agency (EPA) and the White House, and other tools.
- ❑ Begin a review of bureau design guide specifications to incorporate all current sustainability guidance.
- ❑ Host a greening design charrette in the next year to highlight the benefits of sustainable design.
- ❑ Implement new guidelines specifying the use of certain sustainable materials in new construction and major building retrofit projects.
- ❑ Monitor and incorporate recommendations of FEMP's Sustainable Design Working Group.

For more information, please see these Web sites:
http://www.wbdg.org
http://www.bfrl.nist.gov/oae/software/bees.html

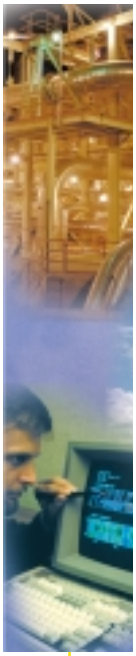
BEES measures the environmental performance of building products by using the environmental life-cycle assessment approach specified in International Standards Organization (ISO) 14000 standards. All stages in the life of a product are analyzed: raw material acquisition, manufacture, transportation, installation, use, recycling, and waste management. Economic performance is measured using the American Society for Testing and Materials (ASTM) standard life-cycle cost method, which covers the costs of initial investment, replacement, operation, maintenance, repair, and disposal. Environmental and economic performance are combined into an overall performance measure using the ASTM standard for Multi-Attribute Decision Analysis. For the entire BEES analysis, building products are defined and classified according to the ASTM standard classification for building elements, known as UNIFORMAT II.

NOAA's Mission: NOAA is dedicated to enhancing economic security and national safety through the prediction and research of weather and climate-related events and providing environmental stewardship of our nation's coastal and marine resources.



Software such as BEES measures the environmental performance of building products.

New Weather Forecasting Office in Caribou, Maine.



Leased Facilities

Section 403e states that agencies shall incorporate lease provisions that encourage energy and water efficiency wherever they are life-cycle cost effective. Build-to-suit lease solicitations shall contain criteria encouraging sustainable design and development, energy efficiency, and verification of building performance. Agencies shall include a preference for buildings having the ENERGY STAR® building label in their selection criteria for acquiring leased buildings. In addition, all agencies shall encourage lessors to apply for the ENERGY STAR® building label and to explore and implement projects that would reduce costs to the Federal Government, including projects carried out through the lessors' Energy Savings Performance Contracts or utility energy service contracts. We will meet this goal through the following actions:

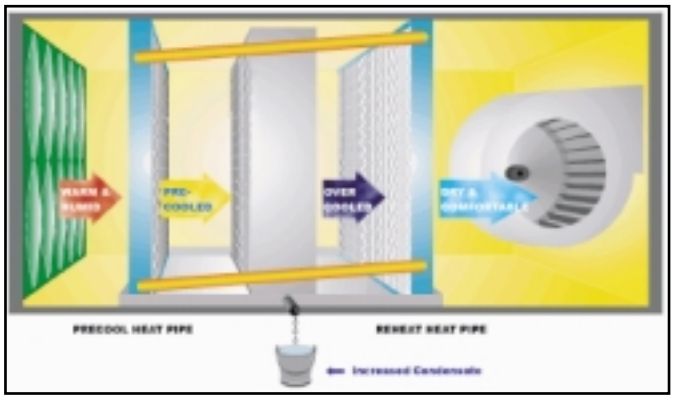
- ❑ Incorporate lease provisions in all future leases that encourage energy and water efficiency and will include criteria in all build-to-suit lease solicitations that encourage sustainable design and development, energy efficiency, and verification of building performance.
- ❑ Include a preference for buildings having the ENERGY STAR® building label in all lease solicitations.

Pacific Tsunami Warning Center.

Industrial and Laboratory Facilities

Section 403f states that, through life-cycle cost-effective measures, each agency shall reduce energy consumption by 20 percent by 2005 and by 25 percent by 2010, relative to 1990 consumption levels. No facilities are to be exempt from these goals unless they meet certain DOE criteria. Therefore, we will meet this goal through these actions:

- ❑ Work with EPA and DOE's Laboratories for the 21st Century (Labs21) Partnership to implement appropriate energy efficiency improvements in all our laboratories.
- ❑ Identify appropriate projects (such as the recent National Marine Fisheries Services Laboratory project in Honolulu, Hawaii) and assign priorities to them.



GeoExchange heat pump installation.

- ❑ Obtain applicable certification for upgraded facilities.
- ❑ Ensure that the selection criteria for architectural and engineering (A/E) services include experience with energy efficiency and sustainable building design, as incorporated at the Pacific Tsunami Warning Center.

For more information, please see this Web site: http://www.epa.gov/labs21century/

Highly Efficient Systems

Section 403g of E.O. 13123 has to do with energy efficiency improvements. Because the Federal Government is the largest energy consumer in the world, the government has a unique opportunity to significantly reduce America's use of energy, and thus its greenhouse-gas emissions, while saving taxpayer dollars. We will continue to strive to reduce energy consumption by 30 percent of 1985 levels by 2005 through life-cycle cost-effective measures and by taking the following actions:

- ❑ Assign priorities to potential energy-saving projects on the basis of cost-effectiveness, with special emphasis on $20 million in projects that have already been identified for NIST and NOAA.
- ❑ Ensure the assistance of Department of Commerce Headquarters in implementing top recommended energy efficiency measures in our facilities.
- ❑ Identify the best locations for cost-effective installation of geothermal heat pumps, in partnership with GeoExchange, the Geothermal Heat Pump Consortium.

For more information, please see this Web site: http://www.eren.doe. gov/femp/prodtech/newtechdemo.html

Off-Grid Generation

Section 403h states that agencies shall use off-grid generation systems, including solar hot water, solar electric, solar outdoor lighting, small wind turbines, fuel cells, and other off-grid alternatives, where such systems are life-cycle cost-effective and offer benefits that include energy efficiency, pollution prevention, source energy reductions, avoided infrastructure costs, or expedited service. We will meet this goal through the following actions:

- ❏ Install photovoltaic systems on several buildings to reduce peak-load demand and reduce energy consumption and costs.
- ❏ Identify, through facility energy audits, and implement life-cycle cost-effective projects for other off-grid systems, including solar hot water, solar electric, solar outdoor lighting, small wind turbines, and fuel cells.
- ❏ Apply for FEMP funding for cost-effective Distributed Energy Resource (DER) projects.

For more information, please see these Web sites:
http://www.eren.doe.gov/der
http://www.eren.doe.gov/femp/techassist/pdf/29656.pdf

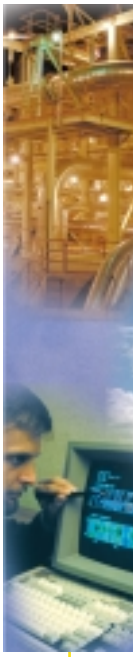
Mark Kuklewicz, NIST engineer, coordinates a new cost-saving, site-wide energy conservation plan.

Electrical Load Reduction Measures

The President's memorandum dated May 3, 2001, titled "Energy Conservation at Federal Facilities," requires Federal agencies to take appropriate action to conserve energy use at their facilities to the maximum extent consistent with the effective discharge of public responsibilities. We will meet this goal through the following actions:

- ❏ Reduce our energy use, particularly in regions where electricity shortages may occur and during periods of peak electrical demand.
- ❏ Establish or enhance communications with local utility companies, understand their needs for load reductions, and work with them to develop an individual facility plan.
- ❏ Identify load-reduction measures appropriate for the facilities, and separate loads into life, health, and safety driven; mission-critical; and noncritical.
- ❏ Establish a system to alert employees of unexpected high-demand days, including but not limited to e-mail, voice mail, and public address announcements to all employees.
- ❏ Monitor total facility demand and demand for individual major loads.
- ❏ Monitor weather forecasts to predict high-demand days and be proactive in communicating with the local utility to assess the need to reduce the load.
- ❏ Initiate load-reduction measures by directing employees to take steps to reduce electricity use for lighting, personal computers, and appliances.
- ❏ Encourage employees to reduce electrical loads in their homes.
- ❏ Initiate conservation measures for lighting, personal computers and appliances, air-conditioning, and other energy-using equipment.
- ❏ Purchase products that use one watt or less in standby mode, as required by Executive Order 13221, “Energy-Efficient Standby Power Devices.”

For more information, please see this Web site:
http://www.eren.doe.gov/femp/resources/dir_plan.html



Greenhouse Gas Reduction

Greenhouses gases, such as carbon dioxide, and aerosols are accumulating in the Earth's atmosphere, raising serious concerns about the contributions of these emissions to rising global air temperatures, with associated sea level increases and secondary climatic effects. Commerce and other Federal agencies are installing highly energy-efficient technologies and purchasing renewable energy systems that will help to reduce these emissions. In accordance with Section 201 of E.O. 13123, we will reduce greenhouse gas emissions by 30 percent by the year 2010, in comparison to 1990 emissions levels, by implementing the following measures:

- ❑ Follow DOE FEMP guidelines for reducing greenhouse gas emissions in the Federal sector.
- ❑ Assign priorities to energy-saving projects on the basis of technologies used and potential savings, to obtain the best emissions reductions.
- ❑ Begin a pilot project demonstrating a clean energy technology (e.g., fuel cell, solar system, wind energy system) at a designated Commerce Department facility.

For more information, please see these Web sites:
http://www.noaa.gov/
http://www.epa.gov/

Fuel cells.

Natural gas engine chiller.

Petroleum Use Reduction

According to Section 205 of the order, each agency is to reduce the use of petroleum within its facilities by switching to natural gas or renewable energy, eliminating unnecessary fuel use, and other methods. Thus, we will employ the following strategy to reduce petroleum usage:

- ❑ Identify projects that reduce the use of petroleum, such as switching fuels and using alternative and renewable energy technologies.
- ❑ Target facilities that use significant amounts of petroleum, and assign priorities to potential projects on the basis of life-cycle costs and potential emissions reductions.

For more information, see these Web sites:
http://www.sustainable.doe.gov/
http://www.aga.org/
http://www.epa.gov/

Source Energy

To meet the requirements of Section 206 of the order, the Federal Government will strive to reduce total energy use and associated greenhouse gases and other air emissions as measured at the source (e.g., at an electric power plant). Agencies are thus to undertake life-cycle cost-effective projects in which source energy decreases. Even if site energy use (measured at the point of use) increases, agencies will receive credit for reducing source energy. In addition, projects that result in source energy reductions will contribute directly to Commerce's performance in reaching greenhouse gas reduction goals. Therefore, we will undertake the following actions:

- ❑ Identify and assign priorities to projects that result in a decrease in source energy usage.
- ❑ Follow guidelines for receiving credits toward energy-efficiency goals for cost-effective projects where source energy usage declines (e.g., by purchasing green power).

For more information, please see this Web site: http://www.eren.doe.gov/femp/greenfed/

A geothermal power plant at Heber, California, produces electricity from a renewable source.

Water conservation measures undertaken now can ensure reliable supplies for the future.

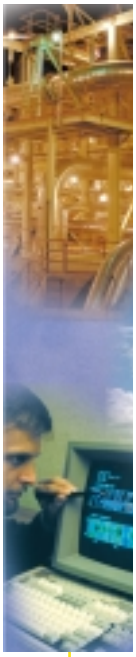
Water Conservation

Section 207 of the executive order calls for agencies to reduce water consumption and associated energy use in their facilities. During the past 10 years, water usage rates have risen all across the United States, as much as 400 percent in some areas. Agencies must therefore implement water management plans and Best Management Practices (BMPs) in five percent of their facilities by 2002 to help offset steep rises in costs. In subsequent years, agencies need to increase the percentage of facilities in which these plans and practices are to be implemented. To meet the goals of this part of the order, we will take the following actions:

- ❑ Establish a reliable baseline for water consumption in Commerce Department facilities.
- ❑ In facilities that lack water usage information, obtain water conservation surveys in order to establish a baseline.
- ❑ Develop an agency-wide water management plan.
- ❑ Review current operating plans and include water management and BMPs wherever applicable, in accordance with DOE guidance.
- ❑ Implement appropriate BMPs in five percent of facilities by 2002 and 15 percent of facilities by 2004.
- ❑ Include water cost savings and sewage savings in all projects, including ESPCs and UESCs.
- ❑ Address the loss of condenser water at NIST facilities.

For more information, please see this Web site: http://www.eren.doe.gov/femp/techassist/waterconserve.html

Mike Rust, a NOAA biologist, and his team helped to build a water recycling plant that saves $230,000 in annual energy costs.

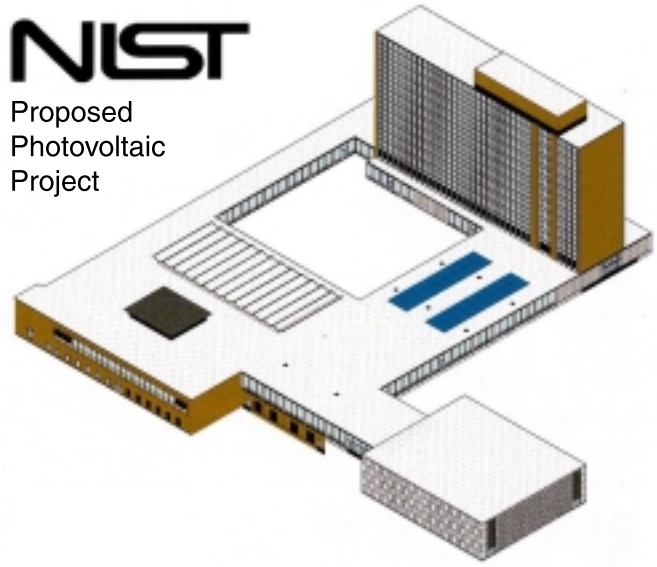


Renewable Energy

The use of renewable energy in the Federal sector helps to reduce the cost of government and preserve precious natural resources. Thus, Section 204 of the order directs that the equivalent of 2.5 percent of Federal facilities' electricity must come from new renewable energy sources by 2005. Agencies are to expand the use of renewable energy within facilities through targeted projects and energy purchases from renewable sources. Agencies should also support the Million Solar Roofs Initiative, which directs the government to install 20,000 solar energy systems in Federal facilities by 2010. Accordingly, we will take the following actions in order to meet this goal:

- ❑ Identify facilities that could benefit from the use of solar water and space heating.
- ❑ Identify facilities that could benefit from the use of electricity produced by photovoltaic (PV) or wind energy systems.
- ❑ Identify facilities that could benefit from the use of geothermal or biomass-based energy systems.
- ❑ Conduct a Federal Renewable Energy Screening Assistant (FRESA) analysis (see FEMP's Web site) to determine on-site renewable energy opportunities.
- ❑ Work with FEMP to identify opportunities to purchase renewable (green) power from utilities and other sources.
- ❑ Work with FEMP and the GSA to purchase on-site renewable energy systems and to include renewable power provisions in Commerce Department facilities in states with open electricity markets.

For more information, please see this Web site:
http://www.eren.doe.gov/femp/techassist/renewenergy.html



Parabolic trough systems heat water using concentrated solar energy.

NIST's Mission: NIST is dedicated to develop and promote measurement, standards, and technology to enhance productivity, facilitate trade, and improve the quality of life."

Wind turbines are being installed in many areas to provide utility customers with options for green power.

At left: The array will be installed flat on the roof. The system consists of 35 kWp photovoltaic modules shown, a DC to AC inverter, and associated electrical gear to feed the generated power into an existing power system in the Administration Building.

Partnering with Others

At the Department of Commerce, we know the importance and power of partnering to achieve success in energy management. In order to strengthen and build on our thriving relationship with the DOE Federal Energy Management Program, we entered into one of the first Master Interagency Agreements with FEMP. The Agreement, signed in 2000, simplifies the process of accessing the many services and resources FEMP offers to Federal agencies. Through this agreement, we have acquired SAVEnergy surveys, contract assistance, strategic implementation planning guidance, and design assistance.

FEMP has also assigned a Resource Energy Manager to NOAA to help identify and implement energy- and water-efficiency measures at NOAA facilities throughout the coming year.

Our current partners in this effort include not only DOE FEMP but also several DOE national laboratories (such as Lawrence Berkeley National Laboratory, the National Renewable Energy Laboratory, Oak Ridge National Laboratory, and Pacific Northwest National Laboratory) as well as several SAVEnergy program contractors.

These partners all bring a high level of expertise to our plans to implement projects in the coming years; together, we will not only conserve our conventional energy and water resources but also help to protect and preserve our environment for many generations to come.

For more information, please see these Web sites:
http://www.eren.doe.gov/femp/utility/fupwg.html
http://www.eren.doe.gov/femp/resources.html

DOC's Jim Beam planned a new energy management system that will save $300,000 per year.

Herman Chan, NOAA engineer, has helped save more than $970,000 in annual energy and water bills.

Merle Marrow of the National Marine Fisheries Service in LaJolla, California, coordinated several energy- and water-saving retrofits at his facility.

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