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Closing the Circle News

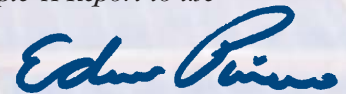
Special Issue: Leading By Example



President Bush has called on the Federal government to lead by example as a good environmental steward, and he started at his own home. In late 2002, the White House installed a solar electric system, placing 167 solar electric panels on the roof of the White House complex's primary maintenance building, and installing two solar thermal systems to heat the pool and spa. The solar panels feed electricity into the White House grounds' distribution system, supplementing its power supply. This is just one of the many ways in which the Federal government is working to improve its environmental stewardship.

Every two years, the Federal Environmental Executive reports to the President on the state of the government's environmental

stewardship efforts. In this special issue of *Closing the Circle News*, we will discuss the Federal activities to advance environmental performance, good stewardship, and smart government during 2002 and 2003. This issue highlights and examines important accomplishments in environmental management, waste prevention and recycling, market development, energy efficiency, renewable energy, sustainable buildings, and transportation and fleet management. For a full copy of the report, visit www.ofee.gov and click on the "Leading by Example" A Report to the President icon.



Federal Environmental Executive





Environmental Management

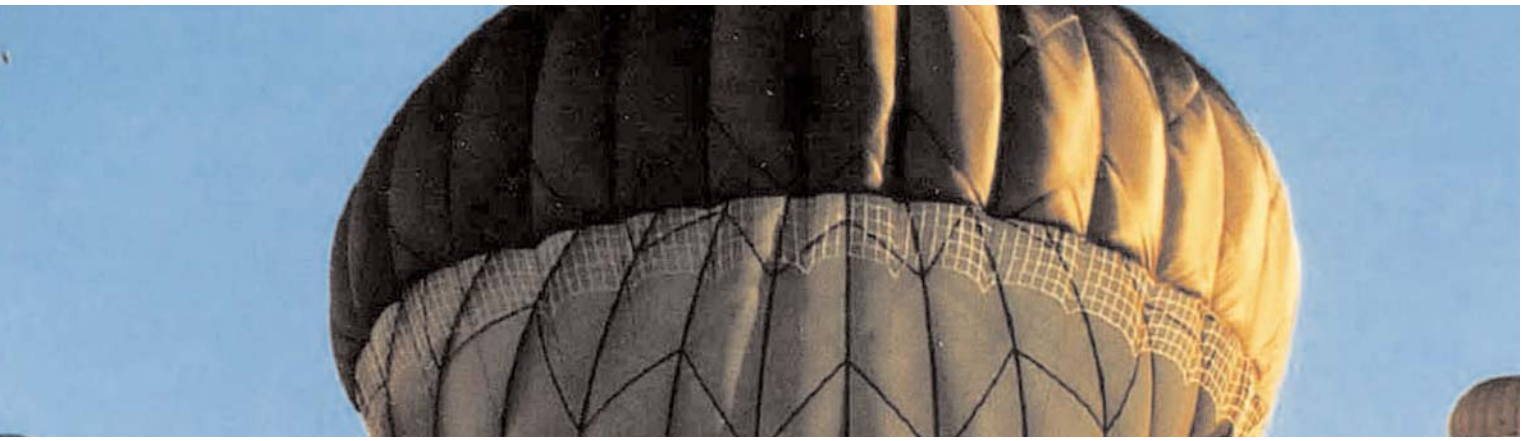
What this means: An Environmental Management System (EMS) integrates environmental priorities into an organization's operational planning and management decisions.

Goals: To implement EMSs at appropriate Federal facilities by December 2005, further reduce toxic chemical releases 40 percent by December 2006, and reduce the use of certain priority chemicals for identified applications by 50 percent.

Simply Stated: Federal agencies should adopt EMSs to ensure regulatory compliance and the incorporation of environmental concerns and priorities into the agencies' daily actions, decisions, and plans.

Quick Facts

- Almost 2,000 Federal facilities are actively pursuing EMS implementation.
- E.O. 13148 requires a 40 percent reduction in reported Federal toxic releases to the Toxics Release Inventory (TRI) by December 31, 2006, as compared to 2001.
- The first priority chemicals agencies will address are lead, mercury, cadmium, PCBs, and naphthalene.



Environmental management systems (EMS) are important tools to meeting the President's management and stewardship agendas. Executive Order 13148, Greening the Government Through Leadership in Environmental Management requires that an EMS be implemented at appropriate Federal facilities by the end of 2005, based on a facility's size, complexity, and environmental aspects. Federal agencies are committed to using EMS as the primary management approach to determine, prioritize, implement, and improve upon environmental issues to move toward sustainable environmental stewardship. EMS

consists of practices, technological applications, and methodologies that improve the environment through the conduct of the routine mission activities of Federal agencies, and do so with a long-term perspective on mission activities and the inherent implications for sustainability.

To facilitate awareness and acceptance of the EMS concept at the facility level, agencies were required to initiate EMS pilot activities at agency facilities in early 2002. In addition, each agency was required to prepare and endorse a written agency environmental management strategy to achieve the requirements and goals of the Order.

To ensure that EMS implementation was employed where it would be most effective, Executive Order 13148 required each agency to identify "appropriate facilities" where an EMS would be implemented. EMS implementation will vary from agency to agency, ranging from an EMS at selected geographic locations, to "corporate" EMS models where a single EMS encompasses multiple sites or portions of the organization. With the assistance of the Office of Management and Budget (OMB), Federal agencies are working to fully incorporate environmental considerations and EMS benefits into their budget and planning documents. ■

Program Examples

The **Depot North Island**, in California, was the first Navy facility to obtain ISO 14001 EMS registration. The EMS produced some excellent results, such as reductions in air toxics emissions by 25 percent, containerized hazardous waste by 33 percent, TRI substances by more than 75 percent, ozone depleting substances by more than 50 percent, electricity consumption by 7 percent, and water consumption by 33 percent. Since implementing these projects, the Depot has avoided \$800,000 in costs and earned more than \$100,000 from recycling activities.

The **US Army Fort Bragg**, in North Carolina, combined the ISO 14001 EMS framework with its Integrated Strategic Sustainability Plan. Fort Bragg's Sustainability Management System (SMS) provides a framework for prioritizing the installation's environmental aspects and impacts while offering a solution for reducing the risk of threats to the installation's readiness. One of the many successes of the SMS is a remarkable 59 percent landfill diversion rate achieved by implementing programs to reduce land-clearing on-going erosion debris and establishing a curbside recycling program.

The **Defense Supply Center Richmond**, in Virginia, partnered with Virginia Department of Environmental Quality, the City of Richmond and Chesterfield County to pursue joint, concurrent EMS implementation. By meeting together to work on EMS issues, the partnership has promoted identification of regional environmental issues that could be most effectively addressed through joint, cooperative efforts, such as looking at ways to reduce air emissions. ■

Waste Prevention and Recycling

What this means: Waste prevention and recycling result in a reduction of waste, either through recycling or reusing materials, or through eliminating waste streams.

Goals: To incorporate recycling and waste prevention practices into Federal agencies' daily operations, to meet 35 percent waste diversion rate by 2005, and to develop government-wide strategies to further implement recycling and waste prevention practices.

Simply Stated: The Federal government should implement waste prevention and recycling practices into its daily routines.

Quick Facts

- Many Federal agencies engaged in new or substantially improved waste prevention practices involving conventional components of the municipal solid waste stream, unusual materials, and industrial by-products.
- In 2001, 30 percent of the municipal solid waste generated nationwide was recovered.

In 1999, the Task Force issued the first government-wide Strategic Plan for waste prevention, recycling, and Federal acquisition. One of the unique aspects of the Plan was the establishment of an aggressive new national recycling goal for the Federal government of 35 percent waste diversion by 2005. The national policy, established with the Pollution Prevention Act of 1990, is to prefer pollution prevention, whenever

feasible. Pollution that cannot be prevented should be recycled. Pollution that cannot be prevented or recycled should be treated in an environmentally safe manner. Disposal should be employed only as a last resort.

To prevent waste and pollution during construction, an increasing number of Federal facilities are exploring the option of deconstruction of buildings, as >>>



Program Examples

Data reported by the three largest procuring agencies, **Department of Defense (DOD)**, **Department of Energy (DOE)**, and **National Aeronautics and Space Administration (NASA)**, indicate that in FY 2003 all or nearly all of their offices, sites, and residential housing (where available) have recycling programs. Waste diversion rates for these three agencies varied from 23 percent to nearly 50 percent. The **General Services Administration (GSA)**, **Department of Veterans Affairs (VA)**, and **Department of Transportation (DOT)** offer recycling at more than 40 percent of their facilities, with substantial diversion rates. Most of these agencies have increased recycling of construction and demolition debris.

In FY 2002, the **State Department** reported a 30.5 percent recycling rate. The **Tennessee Valley Authority (TVA)** diverted 47 percent of its waste stream, including construction and demolition debris. The **National Security Agency** diverted more than half of its waste as part of its "Goldmine" recycling program. Even small agencies, such as the Railroad Retirement Board, recycled 33 percent of their waste stream in FY 2002.

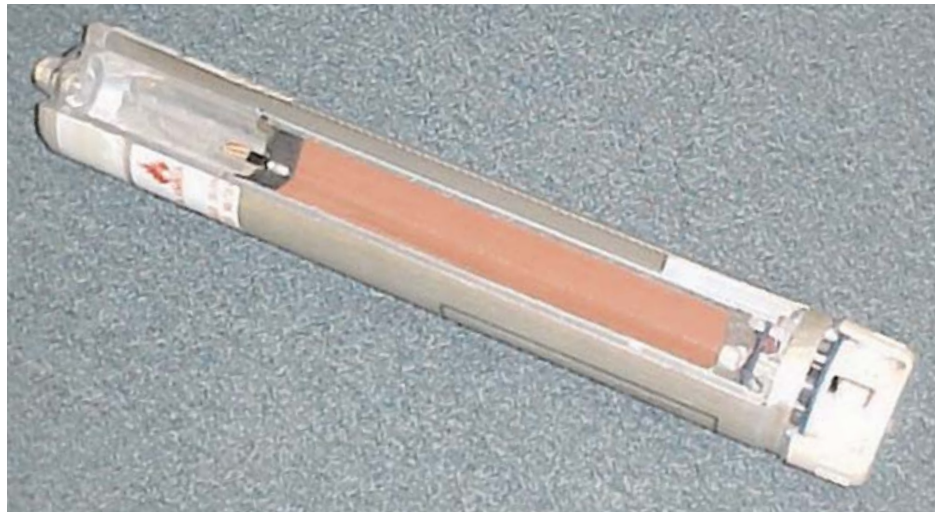
In FY 2003, the **Environmental Protection Agency (EPA)** launched the Resource Conservation Challenge (RCC), a major national effort to find flexible, yet protective, ways to conserve our national resources. It challenges all Americans - makers of goods, sellers of goods, and buyers of goods - to prevent pollution, promote recycling and reuse of materials, reduce the use of toxic chemicals, and conserve energy and materials. This program seeks to increase the national recycling rate to 35 percent and cut the generation of 30 harmful chemicals.

The **Crane Army Ammunition Activity**, a tenant of the Crane Division, Naval Surface Warfare Center, Indiana, had planned on incinerating more than 27,000 marine location markers that failed acceptance tests. The markers are designed for use in air and sea rescue operations and contain red phosphorus, which requires disposal by costly incineration. Crane examined the marine location marker process, overcame design obstacles, and implemented an innovative demilitarization method that found a new use for rejected red phosphorus candles. Crane was able to successfully reuse more than 52,000 pounds of red phosphorus, resulting in cost savings of more than \$2 million and an improved waste diversion rate of 80 percent. ■

>>> an alternative to demolition at the end of a building's life cycle.

Deconstruction refers to the disassembly of a building to maximize reuse and recycling of its materials. Federal agencies continue their efforts to meet the 35 percent goal by maintaining and expanding their recycling programs.

The Federal government is committed to preventing pollution, reusing items where possible, and recycling what cannot be reduced or reused. Practically every Federal government office has a recycling program in place to collect items such as aluminum cans, glass bottles, and office paper. Other items, such as electronic equipment, motor oil, and construction debris, are routinely part of the recycling efforts at many Federal facilities. By purchasing items made from recycled materials, Federal agencies bolster markets for those materials, helping preserve energy and resources for future generations. ■



Energy Efficiency and Renewable Energy

- What this means:** New technology is increasing the efficiency of our energy usage, developing new energy sources, and harnessing the power of renewable energy sources such as wind, water and the sun.
- Goals:** To convert more of our energy consumption processes to run on renewable sources of energy and to consume energy as efficiently as possible.
- Simply Stated:** The Federal government should consume energy more efficiently, use more renewable energy, and reduce energy consumption.

Quick Facts

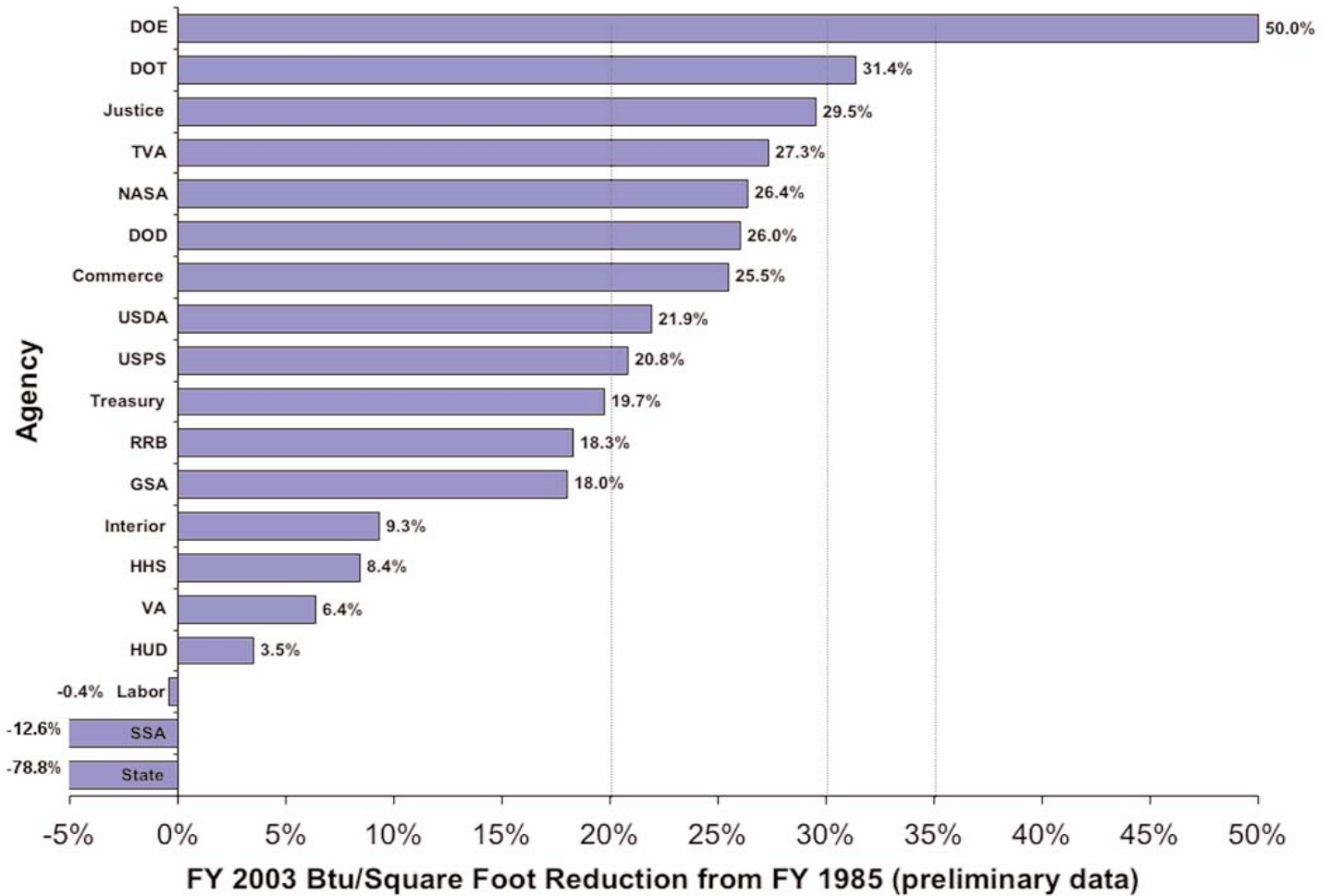
- The Federal government's energy intensity (energy use per square foot) decreased 25 percent since 1985, reducing energy costs by \$2.8 billion over this time span.
- From FY 1990 to 2003, total carbon emissions from energy used in Federal facilities declined by 2.8 million metric tons of carbon equivalent (MMTCE). This is equal to removing almost 2.1 million cars from the road for one year.
- In FY 2003, the Federal government lowered its total facility energy costs 37.5 percent, from \$7.6 billion in 1985 (in 2003 constant dollars) to \$4.7 billion.
- Federal agencies use distributed energy and combined heat and power technologies, such as internal combustion engines, fuel cells, and microturbines.

As the Nation's single largest energy user, the Federal government can lead the nation in becoming a cleaner, more efficient energy consumer. In 2003, the Federal government spent nearly \$9.6 billion to provide energy to its buildings, vehicles, and operations.

Executive Order 13123, Greening the Government Through Efficient Energy Management expanded Federal energy management goals and opportunities. The Order directs Federal agencies to reduce their energy intensity 30 percent by 2005 and 35 percent by 2010. As directed by E.O. 13123, DOE established new Federal government goals for renewable energy and water conservation. Agencies documented their progress in meeting the E.O. 13123 requirements on scorecards submitted to OMB in January 2004. From those scorecards it was found that in FY 2003, agencies invested

more than \$140 million of direct expenditures in energy efficiency, renewable energy, and water conservation projects. Estimated life-cycle cost savings from this investment are approximately \$420 million. Agencies reported more than 8,600 operating renewable energy technology installations government wide during FY 2003, including solar photovoltaic projects; solar thermal, geothermal, and geothermal heat pump installations; biomass projects; wind projects; and other renewable energy projects.

Legislation dating back to 1975, as well as recent Executive Orders, recognizes that numerous opportunities exist for improved energy management within the Federal government and now Federal agencies are making many efforts to improve the methods, tools and resources to consume energy more efficiently. ■



Program Examples

The **Naval Facilities Engineering Command (NAVFAC)** Energy Program has saved more than 900 billion Btu per year, enough energy for 8,900 typical homes. The NAVFAC Energy Program used alternative financing mechanisms to fund energy efficiency improvements; installed renewable energy technologies and highly energy-efficient cogeneration plants; used sustainable building design standards in planning for construction of all new buildings; and developed internet based energy reporting tools to better track (and ultimately reduce) energy use and costs.

Compared to the previous year, the **US Army's Fort Carson** avoided costs of more than \$2.3 million on its utility bills for electricity, natural gas, and water. Fort Carson achieved this success with a comprehensive energy program based on a "top-down" command emphasis on energy awareness and forward thinking project implementation.

The **U.S. Postal Service Pacific Area's** Strategic Energy Management Plan enables the USPS to save millions of dollars in energy costs, significantly reduce electricity consumption, and mitigate the impact of USPS operations on the environment. The Plan created a framework that includes an effective administrative structure, energy management tools for data collection and reporting to management and staff, performance goals, contractual vehicles, and implementation tools to evaluate and complete numerous energy efficiency projects.

Agencies are increasingly using alternative financing, including energy savings performance contracts (ESPC) and utility energy service contracts (UESC), to implement energy efficiency and renewable energy improvements. With these innovative tools, agencies can use private financing to pay for energy and water improvements and then pay back the energy service company or utility through future savings on their utility bill.

EPA and the **Department of Energy (DOE)** co-sponsor the Laboratories for the 21st Century program, a voluntary program dedicated to improving the environmental performance of U.S. laboratories. The program assists partners to better plan, budget, design, and engineer their laboratories and is also developing guidelines and a variety of technical tools, offering workshops, sponsoring annual conferences on the design and engineering of high performance laboratories, clean-rooms, and data centers. ■

Sustainable Buildings

What this means: Sustainable design is the practice of creating healthier and more resource efficient models of construction, renovation, operation, maintenance, and demolition.

Goals: To reduce building energy use, to reduce energy consumption of industrial and lab facilities and to meet ENERGY STAR® building criteria to the maximum extent possible.

Simply Stated: The Federal government is trying to reduce the environmental impact of its buildings by implementing sustainable practices in the construction and management of its buildings.

Quick Facts

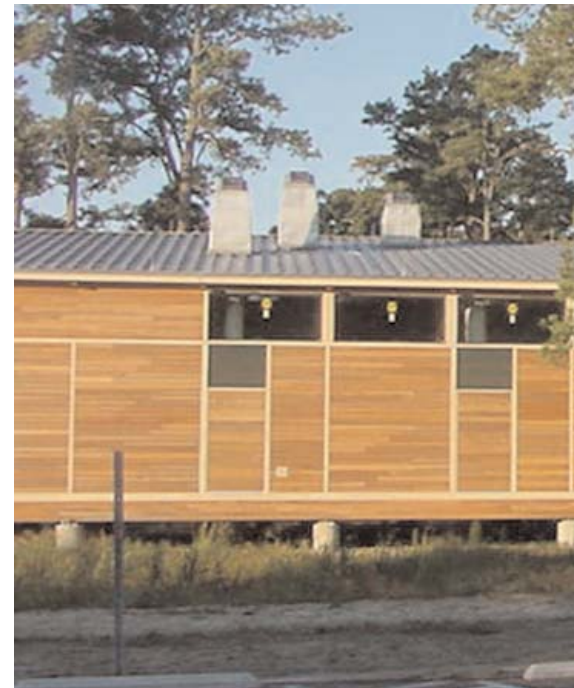
- E.O. 13123 directs Federal agencies to apply the principles of sustainable design to the siting, design, and construction of new facilities.
- In the 2002-03 time period, a total of 32 Federal buildings earned Energy Star® buildings labels for their high- energy efficiency.
- In FY 2003 agencies purchased almost 552 gigawatt hours (million kilowatt hours) of green power, enough renewable electricity to service more than 54,000 average households a year.
- U.S. Green Building Council's (USGBC) Leadership in Energy and Environmental Design (LEED) certification is a comprehensive system for designing and constructing sustainable buildings.
- To date, 16 Federal buildings have already received LEED certification, while another 156 Federal buildings are currently seeking certification.

In 2003, the Federal government spent nearly \$9.6 billion to provide energy to its buildings, vehicles, and operations. Almost 50 percent of the government's energy bill is spent on heating, cooling, and powering its 500,000 buildings. President Bush's National Energy Policy (NEP) recognizes enormous opportunities for the Federal government to save energy and enhance its environmental performance.

A total of 130 Federal buildings have earned the Energy Star® building label since 1999, 32 of those in the 2002-03 period. Energy Star® is a symbol of energy efficiency established by the EPA and DOE. Buildings that are among the top 25 percent nationwide in terms of energy performance (earning a

benchmark score of 75 or greater) and maintain an indoor environment that conforms to industry standards can qualify to receive the Energy Star® label for buildings. In October 2003, the Federal Energy Management Program recognized several of these buildings as outstanding examples of energy efficiency in the Federal sector.

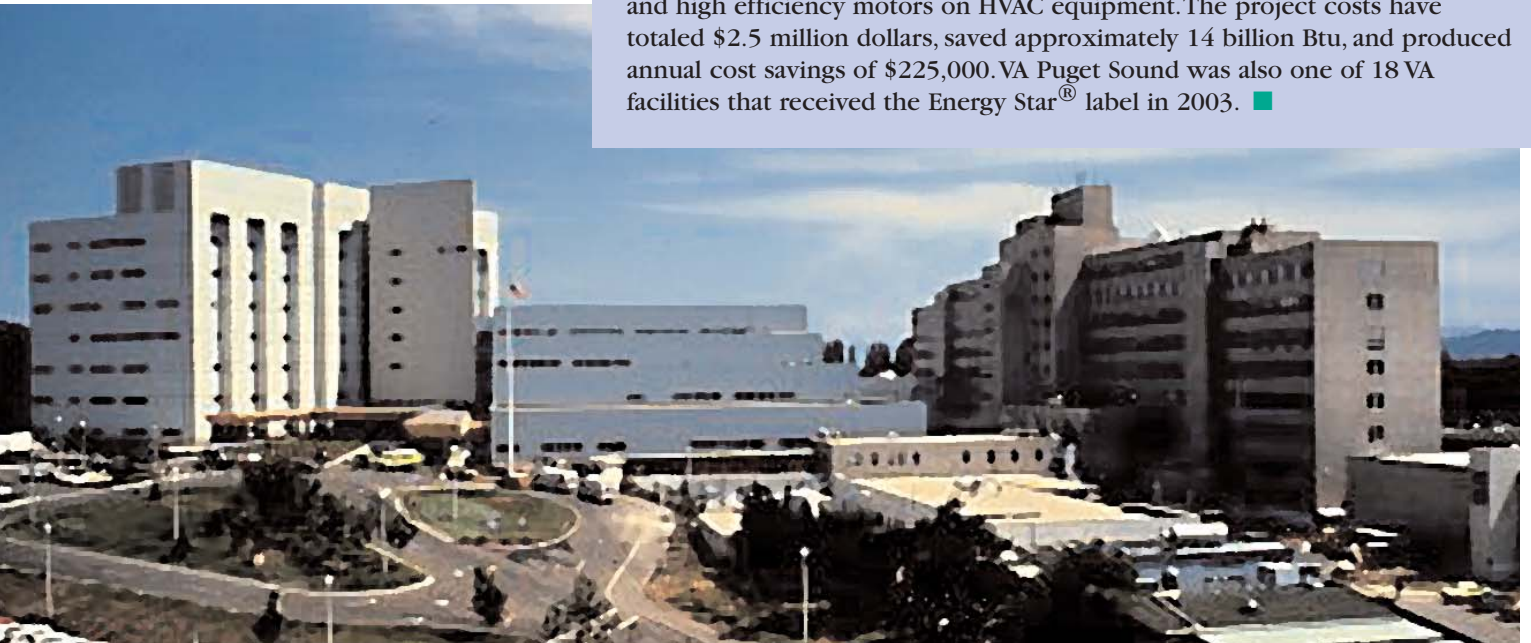
The Federal government has a clear mandate to lead by example with smart energy management, including installation of energy retrofits in existing buildings, incorporation of energy considerations in the design of new facilities, procurement of energy efficient and renewable energy products, improved operations and maintenance, and more effective utility load management. ■



Program Examples

DOI's **Chincoteague National Wildlife Refuge**, in Virginia, is fully embracing the principles of sustainable design at the Herbert H. Bateman Educational and Administrative Center. The Center's design included construction on an existing site to minimize tree removal and other site disturbance, creation of wetlands for wastewater treatment, use of green products, and energy efficient techniques.

The **VA Puget Sound Health Care System**, Seattle Division, has been achieving its goals incrementally while maintaining the primary goal of quality patient care. Energy efficiency upgrades have included the replacement of exit sign lamps with Light Emitting Diodes (LEDs), electronic ballast and lamp replacements, and installation of variable frequency drives and high efficiency motors on HVAC equipment. The project costs have totaled \$2.5 million dollars, saved approximately 14 billion Btu, and produced annual cost savings of \$225,000. VA Puget Sound was also one of 18 VA facilities that received the Energy Star[®] label in 2003. ■



Market Development Through Acquisition

What this means: The Federal government can use its immense buying power to help develop and expand the market for green products by purchasing products and encouraging the development of new products.

Goals: To purchase recycled content, biobased, energy efficient and environmentally preferable products and services; to use alternative fuels and ozone-friendly substances; and to develop and implement Federal agency programs to increase and expand markets for green products and services.

Simply Stated: The government should create a market for green products and services by purchasing them.

Quick Facts

- Over the last decade, the Federal government has purchased more than \$3.6 billion worth of products containing recycled content. Federal agencies now purchase more than 60 types of recycled content products.
- Agencies are also using their purchasing power to help create larger markets for renewable energy, from solar, wind, hydroelectric, landfill methane gas, and geothermal sources.

continued on next page

The U.S. government is the single largest consumer in the nation. It can help conserve our resources by using its \$240 billion purchasing power, and an additional \$200 billion in grant allocations, to develop and enhance markets for products with positive environmental and energy attributes. Since 1976, it is Federal policy to use the Federal government's purchasing power to create and sustain markets for products with specific environmental and energy attributes. Purchasing these products not only conserves natural resources but also helps to demonstrate the performance and cost-effectiveness of the products. A variety of laws and executive orders require Federal agencies to purchase products with

the following environmental and energy attributes: recycled content, energy efficient, renewable energy, energy-efficient standby power devices, alternative fuels, biobased content, non-ozone depleting, and environmentally preferable.

The Energy Star® labeling program is a joint effort between EPA and DOE to encourage manufacturers (and some retailers) to identify energy efficient products with an easily recognizable logo, the Energy Star®. Presently, the program includes a wide variety of office equipment and home heating and cooling products, as well as many consumer audio and video products, appliances, and residential windows. Some commercial equipment is also covered, such as unitary ("rooftop") air conditioners, exit signs, low-voltage distribution transformers, and roof products. Based on recommendations from the National Energy Plan, DOE and EPA are working to extending the Energy Star® labeling program to include additional products, appliances, and services. For product groups where Energy Star® labels are not yet available, agencies are required to select products in the upper 25 percent of energy efficiency as designated by DOE's Federal Energy Management Program (FEMP).

By giving full weight to environmental and energy factors in its purchasing decisions, the government can significantly influence its suppliers, their product design, and pricing policies, as well as purchasing practices of its grant recipients. ■



Program Examples

The **Defense Logistics Agency (DLA)** developed a set of standards using environmental attribute criteria from recognized environmental organizations such as EPA, DOE and the California South Coast Air Quality Management Board, and applied those criteria to products in the Federal Catalog System. This is known as the DLA's environmentally preferred products initiative, and currently there are approximately 5,000 products identified as environmentally preferable.

With assistance from EPA, **GSA's Public Building Service** created model green cleaning clauses to be inserted into building leases in order to direct janitorial contractors to use green cleaning products and practices. GSA also began a partnership with NISH affiliates to increase the use of environmentally preferable janitorial cleaning products. In addition, GSA is specifying green products, including environmentally preferable products, in its construction contracts.

Lawrence Berkeley National Laboratory, in California, reduced its usage of Class I ozone depleting substances by about 99 percent since 1991 by replacing solvent cleaning systems, converting centrifugal chillers and research equipment, installing and converting refrigeration and freezer systems, installing leak detection sensors, and issuing an ozone depleting substance purchasing policy and guidelines to purchasing staff.

In early 2003, **Dyess Air Force Base** purchased 78 gigawatt hours of wind-generated energy—enough for its entire base load. The purchase made Dyess the first military installation to use 100 percent renewable power and the largest wind power purchaser in the United States. At the time of the purchase, because of the base's size and its yearly power consumption, the single purchase represented more than 20 percent of the Federal government's procurement of renewable power. ■

QUICK FACTS continued

- Through the Hydrogen Fuel Initiative and the FreedomCAR initiative, the President is proposing a total of \$1.7 billion over the next five years to develop hydrogen-powered fuel cells, hydrogen infrastructure, and advanced automotive technologies.
- The President's standby power devices initiative spurred electronics manufacturers to redesign their products to use less power in standby mode.
- Executive Order 13123 requires Federal agencies to purchase Energy Star® and other energy efficient products whenever life-cycle cost effective.
- The Farm Security and Rural Investment Act of 2002 requires Federal agencies to give preference in their procurement programs to the purchase of specific biobased content products designated by USDA.
- Federal Agencies continue to phase out ozone depleting substances throughout their operations.
- Federal agencies continue to define, purchase, and test a variety of environmentally preferable products and services, including green cleaning products and services.



Transportation and Fleet Management

What this means: New technologies have developed more fuel efficient vehicles and vehicles that run on alternative fuels.

Goals: To reduce annual Federal fleet petroleum consumption by 20 percent by 2005, compared to 1999; to continue to acquire alternative fuel vehicles as required by EPACT and use alternative fuel in AFVs the majority of the time by 2005; to increase the fuel economy of non-AFV acquisitions at least 1 mile per gallon by 2002 and 3 miles per gallon by 2005; and to implement mass transportation fringe benefit programs to help reduce traffic congestion and air pollution.

Simply Stated: The Federal government should support renewable energy market development by using alternative fuels and purchasing alternative fuel vehicles.

Quick Facts

- In FY 2003, the Federal fleets consumed 3.1 million gasoline gallon equivalents (GGE) of alternative fuels (such as ethanol, biodiesel, and compressed natural gas).
- In FY 2003, Federal agencies acquired nearly 21,000 alternative fuel vehicles (AFV); nearly double the AFV acquisitions from the previous year, raising the total AFV inventory to almost 81,000.
- In FY 2002, almost 733,000 Federal employees, about 30 percent of the Federal workforce, commuted to work other than by single-occupancy vehicles.

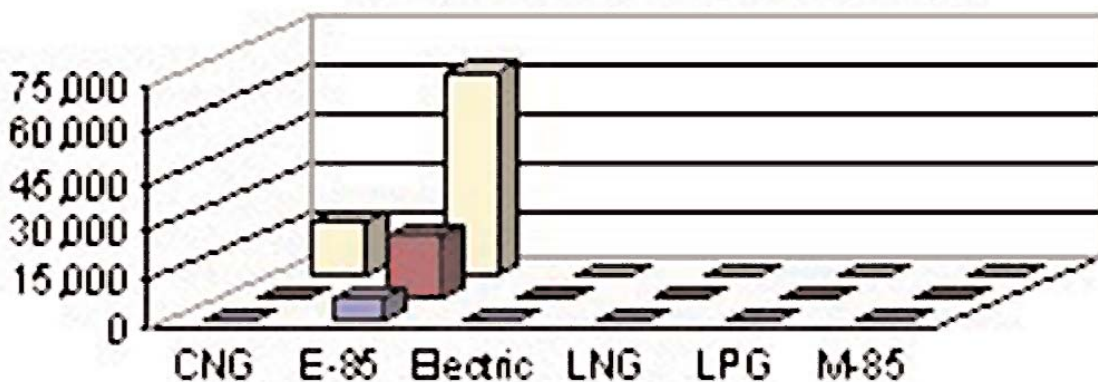
The Energy Policy Act of 1992 (EPAct) sets forth the statutory requirements for the acquisition of alternative fuel vehicles (AFVs) by Federal agencies. Executive Order 13149, "Greening the Government Through Federal Fleet and Transportation Efficiency," directs Federal agencies to fulfill the intent of EPAct to reduce reliance on petroleum products. Through a combination of AFV acquisitions, increased efficiency of fuel use in AFVs, improved efficiency of non-AFV acquisitions, reductions in fleet sizes and vehicle miles traveled, and improvements in overall fleet operating efficiencies, agencies are required to decrease the annual petroleum consumption of Federal fleets by 20 percent by 2005, compared to 1999 consumption.

The Federal Employees Clean Air Incentives Act, enacted in 1993, was designed to improve air quality and

reduce traffic congestion by having Federal agencies encourage their employees to commute by means other than single-occupancy vehicles. The legislation permits the head of each agency to establish programs to promote initiatives such as use of transit passes; furnishing space, facilities or services to bicyclists; and providing non-monetary incentives such as alternative work schedules, flextime, telework, flexiplace, and related parking and shuttle arrangements. Similarly, Executive Order 13150, Federal Workforce Transportation, requires Federal agencies to implement mass transportation fringe benefit programs. This reduces Federal employees' contribution to traffic congestion and air pollution and expands their commuting alternatives. Laws such as these reaffirm the importance of mass transit to improve air quality and reduce traffic congestion. ■

■ FY'02 Acquisitions ■ FY'03 Acquisitions □ FY'03 Inventory

Federal AFVs by Fuel Type



Program Examples

The National Park Service (NPS) has been active in many projects related to alternative fuels and petroleum reduction. The Channel Islands National Park has drastically reduced diesel fuel consumption for electricity production through the use of wind and solar power. Biodiesel is used for power generation, boats and vehicles at the park. Fifty-four percent of the park's mainland vehicle fleet are AFVs.

The Marine Corps is the only organization covered by E.O. 13149 that has already reached the 20 percent petroleum reduction goal, achieving a 27.1 percent reduction in FY 2003 relative to the FY 1999 baseline.

The USPS has the largest AFV fleet in the Federal government, with 37,573 vehicles, accounting for about 46 percent of the 80,951 AFVs in the Federal fleet. The USPS ensures that all delivery (mail hauling) vehicle purchases are AFVs, where available from the manufacturers. For example, the USPS acquired 6,240 flexible fuel vehicles capable of operating on E85 in FY 2003. The USPS also continues to increase its use of the biodiesel blend B20. ■

Alternative Fuel Infrastructure Projects Currently Under Development



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