



Federal Energy Management Program

2008  
YEAR IN REVIEW



## Federal Energy Management Program

# Year in Review 2008

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Peterson Air Force Base recently installed a large demonstration vegetative roof project on an existing administrative facility. The Base, located in Colorado's Rocky Mountain region, experiences a wide range of weather fluctuations and climatic conditions. It makes the case study a perfect place for the Air Force to measure the savings and comprehensive life-cycle costs of the green roof system. The Air Force will evaluate key features of sustainability and life-cycle costing compared to conventional roofing systems over time to see what best practices may be learned to benefit the Government and others.



# Introduction

The 2008 Federal Energy Management Program (FEMP) *Year in Review* is the latest in a series of annual publications produced to document and share the changes, challenges, and accomplishments in Federal energy management. This year the *Year in Review* has a new format that reflects FEMP's reorganization and renewed commitment to customer service in the Federal sector. In order to better meet the needs of individual agencies, FEMP has implemented a new organizational structure that focuses on three core areas:

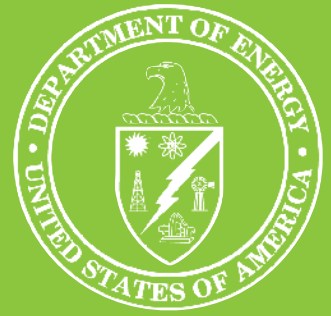
- **Project Transaction Services** – to support Federal agencies through the funding process, offering assistance in identifying and obtaining alternative financing mechanisms;
- **Applied Technology Services** – to help agencies develop and implement sustainable design, operation, and maintenance practices; and
- **Decision Support Services** – to strengthen compliance with legislation and regulations and to ensure accurate annual reporting.

The first part of this document demonstrates ways that Federal agencies are enhancing energy efficiency and productivity; bringing clean, reliable, and affordable energy technologies to Federal facilities; and making a difference in the everyday lives of Federal workers by enhancing their energy choices and the quality of the places they live and work. In the second part, you will see examples of individual and team efforts to lead by example, create new and innovative opportunities for excellence, and change business as usual in the Federal sector.

Under our new organizational structure, FEMP is better prepared to provide agencies with the support they need to implement sound and cost effective energy management investment decisions. We look forward to working with you in 2009 and beyond to provide environmental stewardship over our nation's resources, stimulate our economy, and increase our energy independence.

Sincerely,

Richard G. Kidd, IV  
Program Manager  
Federal Energy Management Program  
Office of Energy Efficiency and Renewable Energy



*The Department of Energy's Federal Energy Management Program's (FEMP) mission is to facilitate the Federal government's implementation of sound, cost-effective energy management and investment practices to enhance the nation's energy security and environmental stewardship.*

# Project Transaction Services



Implementing energy efficiency, renewable energy, and water conservation projects requires significant funding. FEMP supports Federal agencies through the funding process, offering assistance in identifying and obtaining alternative financing mechanisms. These alternative financing tools include Energy Savings Performance Contracts (ESPCs), Utility Energy Services Contracts (UESCs), Power Purchasing Agreements (PPAs), and miscellaneous Federal and State Energy Incentives Programs.

With assistance from FEMP, the Federal Government's commitment to improving energy efficiency has accelerated and grown in recent years. ESPCs under development now exceed \$1 billion dollars for the first time in the program's history. The current pipeline is over three times the size that it was in February 2007, and continues to grow.

## TEAM INITIATIVE

In 2008, the Department of Energy (DOE) embarked on a Transformational Energy Action Management (TEAM) initiative to achieve the Executive Order 13423 goals on an accelerated timeline and to establish DOE as a Federal leader in energy, environmental, and transportation management. The TEAM Initiative's primary objective is to meet and exceed Executive Order 13423's 30-percent energy intensity reduction goal through accelerated use of ESPCs and the use of savings to finance other projects in the areas of renewable energy and energy management. In

February 2008, DOE Order 430.2b, which codified specific policies and directed activities designed to achieve the ambitious goals of the TEAM Initiative. During the year, more than 30 DOE sites across the country hosted energy service companies (ESCOs) to conduct an evaluation of the DOE sites' potential for financeable energy conservation measures. Within that one-year period, as of the end of FY 2008, 25 of the 30 sites had significant activity: four ESPC delivery orders were awarded, and 21 additional ESPC projects were in the pipeline for award.

In addition, in July 2008 DOE's Forrestal headquarters building earned an Energy Star® designation from the Environmental Protection Agency (EPA). The Forrestal building now uses 40 percent less energy than the average office building, saving taxpayers thousands of dollars in energy bills, and preventing the release of 28 million pounds of carbon dioxide emissions each year. At the time of receiving the designation, the Forrestal

*Pacific Basin Agricultural Research Center  
Phase 1 Laboratory, Hilo, HI  
The Pacific Basin Agricultural Research Center  
incorporates sustainable concepts from the ground up,  
including orientation, natural habitat preservation, native  
plant landscaping, and dark-sky lighting.*



# Project Transaction Services

building was one of only two federally-owned and operated office buildings in Washington, D.C. to have earned the ENERGY STAR® distinction. It joined DOE's other headquarters facility in Germantown, Md., which earned the ENERGY STAR® certification in 2002.

## ENERGY SAVINGS PERFORMANCE CONTRACTS

In 2008, FEMP produced and widely distributed an ESPC toolkit developed to accelerate the use of ESPC contracting. This toolkit included outreach to 1,225 additional FEMP contacts linked to projects and the facilities they affect.

FEMP also expanded its free services to facilitate ESPCs at Federal agencies. These expanded services include a significant increase in training efforts; a revamping of two and three-day workshops; the addition of specialized on site, on-request training; and the introduction of ESPC Pricing and Financing, and Alternative Financing "webinars." The number of government personnel who received training more than tripled from 230 in 2007 to over 850 in 2008.

The investment value of ESPC projects in progress increased rapidly and dramatically. From mid-2007 to the end of 2008, the value increased from about \$400 million to more than \$1.4 billion government-wide. For DOE alone, the value increased by a *factor of ten*, from \$40 million to over \$400 million, either in progress or awarded. In FY 2008, 14 new Super ESPC contracts were awarded Government-wide, with a project investment of \$244 million and a corresponding guaranteed cost savings of nearly \$608 million. Since 1992, more than 400 ESPC projects have been awarded by 19 different Federal agencies in 46 states, with guaranteed cost savings to the Federal government of over \$3 billion.

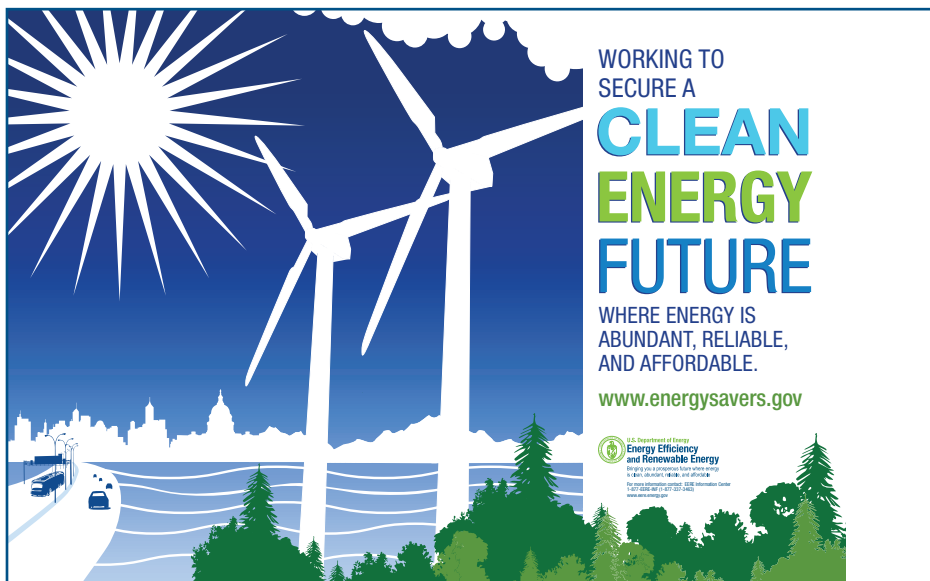
## UTILITY ENERGY SERVICE CONTRACTS (UESCS)

In 2008, the Federal Utility Partnership Working Group (FUPWG) continued to implement its Strategic Action Plan with emphasis in key areas such as partnership building and direct assistance. FUPWG increased its work with the Edison Electric Institute (EEI), an organization of investor-owned utilities representing nearly 75 percent of the nation's utility customers. EEI is now working in coordination



with FUPWG to effectively reach and provide assistance to a large audience. FEMP and EEI have established the Energy Efficiency Working Group focused specifically on the needs of Federal customers.

FEMP has expanded its training to new utility partners, agency acquisition teams, and facilitated projects. This assistance has led to the launch and renewal of additional UESC programs, such as the ones offered by the Pacific Gas & Electric Company and the Southern Company. These efforts have resulted in the award of many UESC projects at Federal locations across the country. Comprehensive UESC projects were awarded at Redstone Arsenal, Naval Air Station Pensacola and Jacksonville, and NAVAIR China Lake, just to name a few. As a result of these and other efforts, FY 2008 project investment increased to over \$120 million, more than 40 percent over 2007 levels.





# Applied Technology Services



FEMP

FEMP helps Federal agencies create and implement sustainable design, operation, and maintenance practices that incorporate energy efficiency, renewable energy, and water-conservation technologies. These practices span both new construction and retrofit projects, as well as transportation management. FEMP services in this area include energy audits, operations and maintenance assessments, laboratory design protocols, new technology reports, advanced metering, guidance for purchasing energy-efficient products and renewable energy technologies, and transportation management assistance.

## FEDERAL FLEET MANAGEMENT

The Federal fleet currently consists of 650,000 vehicles. While 20 percent (121,778 vehicles) are capable of being powered by alternative fuel, legislation mandates an ongoing reduction in fleet petroleum use through energy-efficient and alternative fuel vehicles.

FEMP provides guidance and assistance on implementing and managing energy efficient and alternative-fuel vehicle fleets. This includes helping Federal agencies meet new fleet management mandates, such as recent requirements for agencies to reduce petroleum consumption by 2 % per year through fiscal year (FY) 2015 relative to a FY 2005 baseline and to increase alternative fuel use by 10% per year relative to the previous year.

Within DOE, FEMP is spearheading a comprehensive transportation site-level compliance plan to target the top 20 DOE sites. These sites use 80 percent of mobility fuel and own 74 percent of vehicles. The four-part plan focuses on 1) alternative fuel vehicle acquisitions

and use; 2) biodiesel blend fuel use; 3) acquisition of high efficiency and advanced technology vehicles; and 4) improved fleet efficiency through carpooling and reduced vehicle miles traveled.

## ENERGY SMART TECHNOLOGIES

In 2008, FEMP updated its new technologies list through a report titled *Emerging Technologies for Energy Savings Performance Contracting in the Federal Sector*. The report describes a wide range of technologies and lists their Federal government savings potential, U.S. economy savings potential, cost-effectiveness, and retrofit applicability. Effective follow-on activities that resulted directly from the report included the introduction of advanced technologies, including spectrally enhanced lighting, into at least 10 energy savings performance contracts. Information on new technologies is now routinely provided to ESCOs and their Federal customers during ESPC kick-off meetings.

In conjunction with the National Park Service, FEMP published two new "Spotlight on Design" lighting

*The Visitor Center at Ottawa National Wildlife Refuge, Ohio, is a high performance building designed to be equivalent to the LEED Silver rating. The building foundation incorporates fly ash concrete. The building shell is "super insulated," with low "E" windows, a recyclable steel roof containing 32% recycled steel, and plank siding made from natural materials.*



# Applied Technology Services

case studies: one for the Washington Monument and one for the Jefferson Memorial. FEMP also published a related demonstration case study on fiber optic and solid state lighting for commissaries and, in partnership with the Navy, FEMP demonstrated spectrally enhanced lighting opportunities to save energy and money.

The FEMP Labs 21 technical team published several new *Best Practices* guides and technical bulletins in 2008. Each guide was developed with significant participation by industry experts and was peer-reviewed for content validity and technical accuracy. Topics included optimizing laboratory ventilation rates, commissioning aerosol duct sealing, and technology and operations factors associated with modular boilers. The team also published a guideline for the design of laboratories according to new ASHRAE standards and trained over 800 individuals.

In 2008, FEMP was pleased to partner with DOE's Industrial Technology Program (ITP) to launch a new initiative titled "SAVENERGY Now in Data Centers." The working partnership developed and tested a new tool called the Data Center Profiler and developed a workshop around the introduction and use of the new tool. FEMP also partnered with GSA to hold three data center efficiency workshops for over 100 individuals and to develop a "Quick Start" guide for data centers. Additionally, FEMP and ITP partnered to place wireless sensors and new Superboiler technologies into an ESPC at Oak Ridge National Laboratory.

This year FEMP also expanded the Best Management Practices series from 10 to 14, adding water management planning, laboratories/medical equipment, alternative water sources, and other water use.

## RENEWABLE ENERGY

In 2008, FEMP provided technical assistance for the increased development and deployment of renewable energy in the Federal sector. FEMP assisted agencies with the purchase of 159 GWh of wind power and 135 GWh of Renewable Energy Certificates, for a total that is equivalent to the annual electricity use of approximately 27,000 American households.

During the year, FEMP held two Renewable Working Group meetings for Federal agencies and began a new partnership with the U.S. Army to accelerate the use of renewable energy and other energy efficiency and energy security projects.

In support of DOE's TEAM Initiative, FEMP completed a number of detailed assessments to accurately determine on-site renewable energy potential at more than 20 DOE sites across the country. FEMP and DOE also hosted a special Renewable Energy Forum, attended by a diverse group of more than 175 industry executives and representatives. The Renewable Energy Forum focused on business opportunities that could be implemented to deploy a broad array of renewable energy technologies at Federal facilities. Following the Forum, FEMP issued a "Request for Information" to the renewable industry about the potential for on-site renewable projects at specific DOE sites.

FEMP's technical assistance program also helped several DOE on-site renewable energy projects become operational in 2008. These projects will generate annual renewable electricity output of 616 MWh and 201,241 MBtu of renewable thermal energy.



*The National Weather Service's Weather Forecast Office (WFO) in Key West, FL, is one of 122 WFO's that monitor and predict weather patterns to help protect the nation, and is the second to obtain a LEED Silver rating.*



*The HHS Parklawn Building Program Support Center, Rockville, MD, installed high efficiency chillers, upgraded boiler components, applied solar film to 8,740 windows, and replaced 55,679 T-12 lamps with more efficient T-8 lamps.*



*Johnson Space Center Child Care Center, Houston, TX. To help reduce conventional energy demand and greenhouse gas emissions, NASA's Johnson Space Center constructed a Multi-Platform Renewable Energy System at its on-site Child Care Center.*



# Decision Support Services

The logo for the Federal Energy Management Program (FEMP), featuring the letters 'FEMP' in a bold, blue, sans-serif font. To the right of the text is a stylized graphic of a modern building with a grid-like facade.

Supporting energy and water efficiency, renewable energy, and fleet management, requires a high level of interagency coordination, and effective communications to achieve targeted goals. In this area, FEMP regularly analyzes energy legislation and regulations to help Federal agencies gain compliance with all applicable requirements. This assistance is delivered through guidance documents, annual reporting assistance, and recognition and awards programs.

## POLICY COORDINATION

On December 19, 2007, President Bush signed the Energy Independence and Security Act of 2007 (EISA) adding into statute numerous new Federal energy management requirements. Among these, EISA codified the ambitious energy intensity reduction goals of Executive Order 13423 requiring agencies to reduce energy intensity of facilities by 3 percent a year, leading to a reduction of 30 percent by 2015 compared to the base year of 2003. Section 432 of EISA also prescribes a framework for facility energy project management and benchmarking, including the following elements:

- Designated “facility energy managers” for ensuring compliance of “covered facilities” subject to the requirements;
- “Comprehensive energy and water evaluations;”
- Implementation of identified efficiency measures;
- Follow-up on implemented efficiency measures;
- Web-based tracking system of covered facilities’ energy use, evaluations, projects, and follow-up;
- Benchmarking; and
- Summaries of agency implementation status in Office of Management and Budget (OMB) Scorecards.

During 2008, FEMP published the draft guidance for implementing these provisions. This guidance was developed through an interagency working group process and included valuable input for stakeholders from industry, academia, and energy advocacy groups.

## REPORTING ON ENERGY MANAGEMENT

During 2008, FEMP compiled and prepared the *Annual Report to Congress on Federal Government Energy Management for FY 2007*, the first year for a complete reporting on requirements of E.O. 13423. Key findings from the Report follow:

- Taking into account renewable energy purchases and improvements in the efficiency of certain energy generating facilities, the Federal government decreased energy use per gross square foot by 11.1 percent in fiscal year 2007 relative to fiscal year 2003 for buildings subject to the goal. Based strictly on total site energy use per gross square foot (excluding renewable energy purchases and improved generating efficiency), the government cut its energy intensity by 7.5 percent. Using either accounting method, the government surpassed the EAct 2005 amendments goal of a 4 percent reduction and the E.O. 13423 goal of a 6 percent reduction.
- FY 2007 was the first year for reporting under the new renewable energy goals in the EAct 2005 amendments and Executive Order 13423. Federal agencies reported purchasing or producing 2,774.0 gigawatthours of goal-eligible renewable electric energy in FY 2007, equivalent to 4.9 percent of the Federal government’s electricity use of 56,496.9 gigawatthours, surpassing the goal for FY 2007 of not less than 3 percent.

FEMP also published the *FY 2007 Report on Federal Fleet Compliance with EAct and E.O. 13423*. Key findings included:

- The equivalent of 171 percent of covered acquisitions of light duty vehicles were alternative fuel vehicles, surpassing the goal of 75 percent.



- Petroleum use in covered vehicles was reduced by 3.9 percent from the 2005 baseline nearly meeting the 4 percent goal for 2007.
- Alternative fuel use increased 17.4 percent from 2006 to 2007, surpassing the goal of a 10 percent increase.

FEMP also worked closely with the Office of Management and Budget (OMB) during January and July of 2008 to assess agency performance toward energy and transportation management requirements and to develop scorecards for each agency, rating their status on statutory and E.O. 13423 goals and their progress on OMB and agency-designated action items.

## RECOGNITION

FEMP recognizes and honors exemplary leadership through annual energy management award programs. The Departmental and Transformational Action Management (TEAM) Awards along with the Federal Energy and Water Management Awards ceremonies were held on October 22, 2008 at the Marriott Wardman Park hotel in Washington, D.C. John F. Mizroch, Acting Assistant Secretary for Energy Efficiency and Renewable Energy, presented 20 Federal Awards to individuals, small groups, and organizations for saving more than \$28 million in energy expenses and 1.2 trillion Btu by identifying and implementing energy efficiency projects. Eleven TEAM awards were presented to DOE sites and to individuals who significantly promoted and furthered the goals of the Secretary of Energy's TEAM Initiative.

The White House honored four energy management teams from the U.S. Department of Housing and Urban Development, United States Marine Corps, General Services Administration, and National Archives and Records Administration for their dedication and leadership in the prudent management of energy use in their operations and facilities. These teams

were responsible for efforts resulting in estimated annual savings in excess of \$72 million and more than 3 trillion Btu, equivalent to the energy use of approximately 32,000 typical households. *(Read more about these programs and honorees in the special awards section that follows).*

## AWARENESS

Twenty-one of the largest Federal agencies participate year-round in FEMP's *You Have the Power* campaign to help reach their energy management goals by recognizing outstanding achievements and raising awareness. The campaign promotes "Energy Champions"—employees making extraordinary efforts to help their agencies save energy and taxpayer money. Accomplishments are highlighted through campaign posters sent to regional offices around the nation. In FY 2008, 20 individuals were recognized, increasing the total number of Energy Champions to 472 since 1997. In addition, 13 agencies developed Special Project posters featuring a showcase building or other important energy project for recognition during Earth Day and Energy Awareness Month.

In 2008, there were more than 416,000 visits to the FEMP Web site, with visitors viewing over 1.3 million pages with an average of more than 3,600 pages each day. FEMP also produced a wide variety of print publications in FY 2008, including new issues of *FEMP Focus*, guidance documents, case studies, and technology demonstration project reports. Thousands of these documents are distributed each year through the EERE Information Center. (Energy managers may call the Center at 877-337-3463.)

Federal agencies marked Earth Day and Energy Awareness Month by promoting energy efficiency and renewable energy through the distribution of posters and other awareness materials. FEMP's Earth Day poster asked agencies to "Tap into America's Greatest Energy Resource," energy efficiency. The 2008 Energy Awareness Month theme,




"Working to Secure a Clean Energy Future," encouraged everyone to work together to make wise energy choices.

FEMP has also designed and produced low-resolution artwork and animated energy awareness messages, available for download year round. Please visit [http://www1.eere.energy.gov/femp/services/yhttp/campaign\\_materials.html](http://www1.eere.energy.gov/femp/services/yhttp/campaign_materials.html). Agencies may also obtain a copy of high-resolution artwork on the CD ROM, *A Power Kit: Energy Awareness Resources*, available by calling the EERE Information Center.

## ENERGY EXPO: GovENERGY

The eleventh annual premier energy conference, *GovEnergy 2008: Hot Solutions for Prickly Problems*, was held in Phoenix, Arizona and was co-sponsored by DOE/FEMP, the Departments of Defense, Veterans Affairs, and Homeland Security; GSA; and EPA. Approximately 2,500 registrants attended 13 technical and policy tracks and more than 100 workshop sessions and technical tours. About 200 exhibitors demonstrated a wide spectrum of the latest innovative products and services. FEMP's 2009 annual workshop will be held August 9-12, 2009 in Providence, Rhode Island. Visit <http://www.govenergy.gov>.



# 2008 PRESIDENTIAL AWARDS For Leadership in Federal Energy Management

The Presidential Awards for Leadership in Federal Energy Management honor Federal agency energy management teams for their outstanding efforts to demonstrate leadership and to promote and improve Federal energy management and conservation.

This year, the Office of the Federal Environmental Executive with the Department of Energy honored four agency teams from the Department of Housing and Urban Development, U.S. Marine Corps, the National Archives and Records Administration, and the General Services Administration.

Future generations of Americans depend on us to make wise use of our energy resources, achieve greater energy independence, and protect our environment. The Federal government has a responsibility to lead by example in these endeavors, and this year's award recipients are at the forefront of those efforts. Their creative approaches to energy management, use of innovative financing, and implementation of new and emerging technologies serve as examples to the Federal government and our Nation.





**DEPARTMENT OF HOUSING  
AND URBAN DEVELOPMENT**

**OFFICE OF PUBLIC AND  
INDIAN HOUSING**

**Public Housing  
Authorities  
Saving Energy**



- Darlene Felton
- Leroy Ferguson
- CAPT John H. Miller, II, CEC, USN
- Tara Motley
- Brian Ruth
- Richard D. Santangelo, P.E.

The U.S. Department of Housing and Urban Development’s (HUD) Office of Public and Indian Housing (PIH) developed a comprehensive program to invest in conservation and energy management that is increasing the asset value of public housing agencies (PHAs) and improving the quality of life for low-income residents. In 2003, PIH launched a project to establish a utility benchmarking tool that used actual utility consumption data from PHAs. A new automated system allows reporting of consumption data at individual properties, providing baseline information for each PHA to monitor the results of their conservation programs.

PIH has taken steps to increase energy performance contracting (EPC) as a key financing tool, including extending maximum contract terms from 12 to 20 years; strengthening technical support; identifying strategies for enabling small sites to use EPCs; and conducting training. From FY 2006 to FY 2007, the guaranteed savings of all awarded contracts increased by 80 percent, from \$37.6 million to \$68 million, with energy conservation investments increasing by 35 percent to \$121 million and more than 201,800 public housing units receiving renovations to date.

PIH also instituted policy that helps PHAs purchase ENERGY STAR® equipment for existing and new public housing, with several states requiring new affordable housing to be built to ENERGY STAR specifications—at least 15 percent more efficient than homes built to the 2004 International Residential Code. The Public Housing Environmental Conservation Clearinghouse distributes news and information to employees at more than 3,200 PHAs on energy and water conservation, best practices, policies, utility data collection tools, and other resources.



Marine Corps Air Station Miramar, California, has an impressive record of exceeding government mandated reduction levels. In FY 2007 the base achieved a 9.5 percent reduction in energy intensity from the previous year and a 13 percent reduction from the baseline, as compared to the Executive Order 13423 mandate of a 6 percent reduction for that year. This translates to savings of 34 billion Btu and almost \$1.4 million. At 49,000 Btu-per-square-foot, Miramar has the lowest energy intensity of all Marine Corps installations.

Top-level support ensures that Miramar's energy professionals have the tools to achieve and exceed mandated goals. A full-time Resource Efficiency Manager focuses on no- and low-cost opportunities, including behavioral aspects of end users, operations and maintenance, awareness, training, and accounting. The base uses energy savings performance contracts and direct appropriated funding for numerous lighting and heating, ventilation, and air conditioning upgrades. Miramar is also on track to exceed the 2 percent annual reduction for water consumption, based largely on a water reduction effort that in FY 2007 converted 97 million gallons of potable water use to reclaimed water use, with only two of seven project phases complete thus far.

Miramar is completely metered for electric, gas, and water, and employs benchmarking technology to permit trend consumption and anomaly identification. The base has completed 100 percent of their facility audits, and is moving forward with a technology-specific ESPC that may allow Miramar to be the first net zero installation. Miramar is developing a request for proposals to develop and offer for purchase 25,000 megawatt-hours of green power annually—a sizeable portion of the entire station's load—to enhance emergency response, energy reliability, and potentially reduce dependence on diesel generators during emergencies.



UNITED STATES  
MARINE CORPS

**Marine Corps  
Air Station  
Miramar's  
Energy  
Campaign**

Wendell Beacham

Victor Beltran

Captain Matthew D'Agostino

Colleen Finch

Lieutenant Commander

Efram Fuller

Mercedes Hall

Jack Harkins

Jeremi L. Kowalik, Jr

Michael Lichtenthaler

Lieutenant Colonel

Christopher S. Manis

Randy J. Monohan

Colonel Christopher E. O'Connor

Edward Rumsey

Roger Wagner

Thomas Winter





**NATIONAL ARCHIVES AND  
RECORDS ADMINISTRATION**

**Agency-wide  
Energy  
Management  
Initiative**

- John Bartell
- William A. Harris
- Walter D. Hayes
- Ronald C. Noll
- Ngan Pham
- Wilson Reynolds
- Steve Samford
- William Saulino
- Gary Simmons
- David Sponn
- Mark D. Sprouse



With an overwhelming proportion of square footage dedicated to records and artifact storage, the National Archives and Records Administration (NARA) maintains an aggressive energy conservation program. In 2006 NARA developed an agency-wide energy management plan that formalized policy, procedures, and responsibilities for NARA energy management. In FY 2007, NARA's Energy Management Team focused on the largest and most energy-intensive building in their inventory, implementing major operational changes and infrastructure improvements.

An updated preservation doctrine allowed NARA to modify the air handler programming providing cooling to the document stacks. One handler can now serve two stacks simultaneously—allowing 11 large air handlers to be shut down. An energy savings performance contract (ESPC) provided a complete upgrade to the mechanical and energy management control systems as well as a comprehensive lighting upgrade. NARA used direct appropriations for another project where the team automated the chemical treatment system to the cooling towers and replaced an aging deionization system.

NARA also began on-site energy audits at each of the Presidential Libraries to identify low- and no-cost initiatives as well as cost-effective capital projects. These larger capital projects include a cogeneration system at the Reagan Library and sustainable improvements to the Clinton Library that resulted in LEED Platinum status. In the last two fiscal years, NARA invested more than \$7.5 million in energy efficiency projects. As a result, the agency reduced energy intensity by more than 6 percent from FY 2006 and almost 19 percent from the 2003 baseline, representing combined savings of 114 billion Btu, more than \$2 million in energy costs, and 5,700 tons in avoided carbon emissions.



GSA

GENERAL SERVICES  
ADMINISTRATION

**Green Government  
at its Best**

The General Service Administration's Pacific Rim Region's strategic energy plan focuses on the benefits of on-site generation to reduce dependence on utility-provided energy; compliance with energy-related design criteria; and long-term environmental and sustainable principles. The Pacific Energy and Sustainability Team participates in every capital improvement project to provide direction and guidance in project design, sharing its expertise on technology, goals and objectives, and financing options. The Team's efforts have resulted in a decrease in energy intensity of more than 2 percent from the region's 2003 baseline despite increased operational requirements, increased security, and extended operating hours.

In FY 2007 the team completed projects in nine separate facilities, encompassing 24 buildings. Projects included a power purchase contract to install a modular alternative generation plant; installation of a 274-kilowatt photovoltaic system; a 10-year contract award for on-site photovoltaic power producing 740 megawatt-hours per year; and a widespread lighting retrofit project that uses the latest technologies in occupancy sensors, fluorescent tubes, induction lamps, and electronic ballasts. The new San Francisco Federal Building, designed and constructed to standards that surpass energy and environmental benefits of similar conventional buildings, is hailed as one of the greenest public buildings in America. The Reno Veterans Affairs Regional Office is the first LEED-certified building in the Pacific Rim's inventory, receiving a LEED Silver rating.

The Team spreads the word out about the region's green buildings through facility tours and learning kiosks, and through internal communications such as the region's quarterly newsletter and Web-based community bulletin board.

Montserrat Agleham  
Gregory V. Allison  
Tim F. Cashman  
Steven M. Clark  
Paul J. Davis  
Angel L. Gonzalez  
Naomi L. Hatkin  
Patrick G. Jones  
David E. Leites  
Mark S. Levi  
Robert Martinez  
Edward J. Rodriguez



# 2008 Departmental and TEAM Awards

In 2008, the awards recognized exemplary individuals and teams who significantly promoted and furthered the goals of the Secretary's Transformational Energy Action Management (TEAM) Initiative and showed superior leadership in effective, efficient energy management.

On January 26, 2007, the President signed Executive Order 13423, *Strengthening Federal Environmental, Energy, and Transportation Management*. Ambitious targets were set in key areas, including energy efficiency, greenhouse gas reductions, water conservation, renewable energy generation, transportation management, and sustainable building practices. Sensing the opportunity presented by the President's challenge, the Department of Energy initiated a program to dramatically transform the way it contracts and manages energy use, with the goal to establish DOE as the Federal leader in transformational environmental, energy, and transportation management.

DOE Order 430.2B reflects the TEAM Initiative's efficiency, renewable energy, and transportation goals. By implementing this Directive DOE is leading the way for all Federal agencies to reduce energy consumption using innovative alternative financing mechanisms such as Energy Savings Performance Contracts (ESPCs) and Utility Energy Services Contracts (UESCs). In one year, the 2008 awardees and other agency champions have developed projects which, when fully implemented, will reduce DOE's energy intensity by 20 percent from 2003. In addition, 3.5 percent of DOE's electricity will come from new renewable sources.

These projects will contribute to DOE's overall progress toward meeting the goals of Executive Order 13423, the Energy Independence and Security Act of 2007, and the Energy Policy Act of 2005 (EPAct). Fiscal Year 2007 data shows that DOE has decreased energy consumption per gross square foot by more than 16 percent compared with FY 2003. The Department also reported purchasing or producing 209 gigawatt-hours of renewable electric energy, equivalent to 4.3 percent of its electricity use.

We at FEMP extend our congratulations and gratitude to the teams recognized with these awards for making both the Department's Energy Management Program and the TEAM Initiative a great success.



*"The TEAM Initiative will allow the Department of Energy to be an example among the Federal agencies, to serve as an energy efficiency leader for the entire Federal government."*

– Samuel W. Bodman  
Secretary of Energy

## Oak Ridge National Laboratory

Bob Baugh  
Bradford Estadt  
Christopher Gentry  
Johnny Moore  
Greg Palko  
Wayne Parker  
David Peters  
Mary Rawlins  
Jimmy Stone

## National Energy Technology Laboratory

Bernard M. Avon  
Kaye Blonarize  
Craig Hustwit  
Larry Kincell  
Denise Riggi  
Joseph Saunders  
Benjamin Smith

### ESPC CHAMPION AND STREAMLINING AWARD

Oak Ridge National Laboratory (ORNL) has continued to demonstrate energy management leadership with its \$89 million energy savings performance contract (ESPC) awarded earlier this summer. In conjunction with Johnson Controls, Inc., the contract was completed in an astounding 300 days from kickoff to award, less the half the time typical for an ESPC award.

In addition, ORNL is the only DOE laboratory thus far in the TEAM Initiative expected to exceed energy and water intensity savings goals, as well as the thermal renewable energy goal, all from a single ESPC project. Moreover, ORNL expects to exceed the goals well in advance of mandated deadlines. The project's energy conservation measures include improvements in building energy management control systems, installation and use of advanced electricity metering, and decentralization of the campus steam system. The project also includes an innovative biomass gasification steam plant that will displace natural gas and fuel oil.

All together, the energy conservation measures included in the project are estimated to save the facility 850 billion Btu per year of energy and 170 million gallons of water, generating \$8.7 million in annual cost savings. These savings, which will make a significant impact towards Agency-level goals, represent a high-quality team effort on behalf of ORNL toward improving the Nation's energy security and environmental protection.

### COMPREHENSIVE PROJECT AWARD

The National Energy Technology Laboratory (NETL) ESPC project has the greatest range of innovative technologies spanning the most TEAM Initiative goals. In an awarded contract for \$6 million, the project includes emerging technologies such as vertical axis wind turbines, a green roof system, photovoltaic solar panels, and hybrid solar lighting, which involves collecting sunlight and transporting it through optical fibers to light interior spaces. While these systems by themselves have long payback times, NETL placed high importance on technology demonstration and technology transfer, and bundled the measures into a larger ESPC project.

One of the leading energy conservation measures of the project involves decentralization of the steam system. Not only will the decentralization save energy, but the boilers will be fueled with biogas from local landfills, and as such will be yet another source of renewable energy for the laboratory.

Along with water saving measures, lighting upgrades, heating, ventilation, and air conditioning (HVAC) improvements and other energy conservation measures, the NETL project is estimated to save the laboratory over 23 billion Btu of energy, 3.4 million gallons per year of water, and \$750,000 in annual energy and water costs.





## PROGRAM EFFECTIVENESS AWARD

Since the beginning of the TEAM Initiative, the Office of Environmental Management (EM) has actively championed the goals of the Initiative. From the highest levels of the program to its front line personnel, EM has demonstrated keen interest in its performance and worked hard to maximize its potential throughout its facilities. Through internal program reviews and frequent interaction with FEMP, the office was proactive in making sure its sites stayed on schedule. When difficulties arose, EM diligently rallied its resources to address them, and critical projects have benefited from EM leadership to overcome technical and procedural hurdles. EM has also taken a leadership role in high performance sustainable buildings (HPSB), where the program has worked to further a tool that uses the Leadership in Energy and Environmental Design (LEED) process to enable sites to meet mandated HPSB requirements.



## RENEWABLE ENERGY AWARD

The National Renewable Energy Laboratory (NREL) has distinguished itself by having the most significant renewable energy projects under contract or in construction within the TEAM Initiative to date. Two large photovoltaic arrays will be constructed—a 750-kilowatt system and a 1.5-megawatt system—that will produce nearly 4 million kilowatt-hours per year of clean electricity. In addition, a biomass fueled heating plant was recently completed and will provide the laboratory with nearly 30 billion Btu per year of renewable thermal energy. The systems demonstrate NREL's commitment to energy security and the environment, as well as the needs of generations to come.

## LEADERSHIP AWARD

John Ordaz played a key role as the National Nuclear Security Administration (NNSA) lead for the TEAM initiative. His creativity and knowledge helped generate ideas to take on difficult hurdles in improving DOE energy management. His efforts supported the development of ESPCs even at sites exempted from TEAM, and built bridges among distinct organizations within DOE. John facilitated communication between the Office of Energy Efficiency and Renewable Energy (EERE) and NNSA at all levels, whether it was formal correspondence between political appointees or between front line energy and project managers. John's efforts embody DOE's commitment to improving energy management, leadership by example, and strengthening the Nation's energy security.

### DOE Office of Environmental Management

Jeffrey M. Allison

George T. Basabilvazo

Patrick J. Burke

Steve T. Burnum

Ker-Chi Chang

Yvette Collazo

Mark A. Gilbertson

Thomas R. Hoertkorn

Donell Jenkins

Russell J. McCallister

James A. Rispoli

Larry E. Snyder

Sandra L. Waisley

David S. Wolfe

### National Renewable Energy Laboratory

Jesse Dean

Chris Gaul

Grant Keath

Jared Schoch

Steve Scott

Otto VanGeet

Patty Walters

Bob Westby

### John Ordaz

### National Nuclear Security Administration

## **Arnold Edelman** **Office of Science**

## **EERE** **Solar Technology** **Program and DOE** **Office of Management**

Clint Cleveland

Brian Costlow

Edward Danchik

Craig Frame

Eric Haukdal

Thomas Kimbis

Charles Kuzas

John Lushetsky

Kevin Lynn

Matthew Parker

Michael Shincovich

Cherylynn Williams

## **Idaho National** **Laboratory**

Jeff Fogg

Wade Hillebrant

Kerwin Hassing

Ernest Fossum

Larry Duncan

Don Lewis

Dave Robertson

Jim Wade

Carter Ward

## **LEADERSHIP AWARD**

This year's Departmental energy management push could not have been accomplished without Arnie Edelman. His leadership, initiative, and insight brought much benefit to the TEAM initiative and helped sites across DOE—not just those in the Office of Science—attain their goals. Arnie supported the development of the executable plan guidance, facilitated regular communication with more than 10 major DOE sites regarding requirements and progress, and actively engaged FEMP staff on all important issues. His contributions solidified DOE's efforts to improve energy security, mitigate climate change, and increase operational efficiency.

## **SPECIAL ACHIEVEMENT AWARD FOR TECHNOLOGY DEMONSTRATION**

As a clear demonstration of leadership by example, the Department of Energy Headquarters Forrestal building installed a 205-kilowatt photovoltaic array, capable of generating approximately 200 megawatt-hours per year of clean electricity and saving \$26,000 per year in energy costs. A display in the Forrestal building will show the power output of the PV system during the day and the energy produced over time. This information will educate the public, provide valuable information to Federal and local agencies, and demonstrate the Federal government's commitment to both addressing its own energy use and commercializing renewable energy technologies. DOE's Solar Technology Program and Office of Management worked in partnership with the General Services Administration to complete this project.



*NREL's recently completed Science and Technology Facility*

## **SPECIAL ACHIEVEMENT AWARD FOR ENERGY SECURITY**

As a major piece of its \$33 million ESPC contract awarded last summer, the Idaho National Laboratory will replace a number of oil-fired boilers with efficient electric boilers at its Material Fuels Complex. Electric heat will be provided in four forms: electric resistance heating coils, individual electric steam generators for process loads, electric hot water boilers, and a smaller electric-fired steam plant, located where the existing oil-fired plant stands. The fuel switch will displace 600,000 gallons of fuel oil per year, and exemplifies how a DOE facility can help take a leadership role in reducing the Nation's dependence on foreign oil.

Other major energy conservation measures included in the ESPC project are: site-wide lighting upgrades using T-8 fluorescent lamps; installation of electricity and water meters; updates to HVAC controls; and a solar transpired wall, which will pre-heat intake air and lower the demand on the HVAC system during cooler months while shielding the building from solar gain during warmer months.



## TEAM IMPLEMENTATION AWARD

This year's Departmental Energy Management Implementation Award recognizes individuals who played a key role in the success of the TEAM Initiative. These individuals were responsible for transforming the management vision of dramatically improved energy management standards into the planning, policies, and performance measurements necessary to bring the vision to reality.

Each of these individuals provided the catalyst for turning theory into practice. More than 40 DOE sites of varying sizes, resources, and missions participated directly in the TEAM Initiative. Acting as the critical links between leadership vision and on-the-ground application, the awardees demonstrated a unique blend of policy expertise, analytical know-how, and project management excellence necessary to achieve the ambitious goals of the TEAM Initiative. These individuals are distinguished by their thoughtful application of management practices and concepts that continue to show results, and are crucial to establishing the Department of Energy as a Federal leader in energy management.

## EXECUTIVE LEADERSHIP AWARD

The TEAM Initiative began as a Secretarial vision. As the recognized authority in providing for the nation's need for clean, affordable energy, the Department of Energy has an inherent responsibility to lead by example in the application of responsible energy management practices and technologies.

The recipients of the Executive Leadership Award provided additional breadth and scope to the Secretary's vision, articulating the leadership principles that guided its execution and providing leadership support to those responsible for implementation. These individuals were responsible for marshalling the resources and gaining the Departmental consensus necessary to ensure success. The successful execution of a process as transformative as the TEAM Initiative requires the exemplary leadership demonstrated by these outstanding individuals, and the Department recognizes and commends their hard work and dedication.

## YOU HAVE THE POWER ENERGY CHAMPION AWARD

Energy champions are employees of the Federal government who have made extraordinary contributions to the energy savings effort. These individuals develop and advocate innovative practices that save energy and money and improve the efficiency of the government. They serve as role models for their fellow employees, and for all Americans.

Twenty-First Century Citizenship is being forged by energy champions like Doug Dahle, who provided critical support to advance the widespread implementation of the Energy Savings Performance Contracting (ESPC) program to improve the quality and performance of Federal facilities. Pioneering efforts led to the contracting procedures contained in the ESPC Final Rule, 10 CFR 436; drafting the initial RFP that streamlined master contracts through Super ESPCs; and creating expert training programs to accelerate private sector financing resulting in more than \$1 billion in energy efficiency and renewable energy projects that save 8.7 Quads of energy world wide.

Chris Calamita

Steve Chuslo

Carl Costello

Anne Crawley

Kasey Curtis

Beverly Dyer

Tyrone Foster

Brad Gustafson

Schuyler Schell

David Shen

David Hill

General Counsel

Office of General Counsel

Adam Ingols

Chief of Staff

Office of the Secretary of Energy

Ingrid Kolb

Director, Office of Management

David Rodgers

Deputy Assistant Secretary

Office of EERE Technology Development

**Doug Dahle**

**National Renewable  
Energy Laboratory**

2008

## Federal Energy and Water Management Awards

More than ever before, our energy future depends on the energetic commitment of individuals and teams within Government to apply creativity and innovation toward effective energy management. Improved energy and water efficiency and the enhanced use of renewable energy, sustainable design, and alternative fuels not only helps agencies meet new and challenging Federal goals, but also increases our energy independence, improves environmental quality, and saves taxpayers' dollars.

To recognize the commitment and extraordinary efforts of such individuals and teams across the Federal government, in 1981 the Department of Energy and the Federal Interagency Energy Policy Committee founded the Federal Energy and Water Management Awards. The Energy Policy Act of 2005 also called for awards for these accomplishments.

The Federal Energy Management Program (FEMP) is proud to salute the 22 winners of 2008 who in one year, through hard work, innovation, persistence, and vision, collectively saved more than \$28 million in energy expenses and 1.2 trillion Btu by actively identifying and implementing energy efficiency projects. In addition, winners saved 647 million gallons of water and more than 484 billion Btu of energy through a combination of renewable energy generation and purchases.

Please read about these winners in the following pages. They are the government's energy champions, and FEMP is grateful for their contributions and inspirational actions in pursuit of excellence in facility and fleet management.

*“While we must increase our investment in alternative fuels and renewable energy sources, we must also continue to promote enhanced energy efficiency wherever we can – in our homes, our vehicles, and our offices.”*

– Samuel W. Bodman  
Secretary of Energy



## WATER CONSERVATION AWARDS TO ORGANIZATIONS

### United States Marine Corps

#### AIR STATION MIRAMAR

#### SAN DIEGO, CALIFORNIA

In FY 2007, Marine Corps Air Station Miramar used combined efforts to achieve total water cost savings of more than \$1 million. Miramar used metering equipment to locate and repair water leaks throughout the base and identify and troubleshoot high water use areas, thereby decreasing potable water consumption by 29 million gallons. In addition, to help relieve drought conditions affecting the San Diego region, the station completed the first two phases of a reclaimed water project. Irrigation of the station's golf course was converted from potable to reclaimed water usage by tapping into the City of San Diego's large reclaimed water line, saving another 97 million gallons for a total of 126 million gallons saved at the station. These savings equate to a decrease in water consumption of 15 percent from the previous year, reducing the station's consumption to 12 percent below the FY 2007 baseline. Five remaining phases of the reclaimed water project are planned for completion by FY 2010.

### Department of Veterans Affairs

#### VA MEDICAL CENTER

#### HUNTINGTON, WEST VIRGINIA

The Huntington Veterans Affairs Medical Center initiated a water reduction project in 2007 as part of its Green Environmental Management Services initiatives. The project upgraded the Center to Leadership in Energy and Environmental Design (LEED™) standards, converting 178 laminar flow faucets from 2.2 gallon per minute (gpm) to 1.5 gpm devices and 33 showerheads from 2.5 gpm to 1 gpm devices. Water savings are estimated at more than 1.5 million gallons—a 6 percent reduction from FY 2006—equating to almost \$13,000 in water costs. The Center realized an added benefit to its infection control program by incorporating silver ion antimicrobial technology, as silver prevents bacterial growth and eliminates bio-film formation on the laminar flow devices. The Center plans to replace remaining faucets and showerheads to ensure continued compliance with Executive Order 13423's mandated water conservation goals.

## RENEWABLE ENERGY AWARD TO AN ORGANIZATION

### United States Marine Corps

#### BASE CAMP PENDLETON

#### CAMP PENDLETON, CALIFORNIA

In FY 2007, Marine Corps Air Station Miramar used combined efforts to achieve total water cost savings of more than \$1 million. Miramar used metering equipment to locate and repair water leaks throughout the base and identify and troubleshoot high water use areas, thereby decreasing potable water consumption by 29 million gallons. In addition, to help relieve drought conditions affecting the San Diego region, the station completed the first two phases of a reclaimed water project. Irrigation of the station's golf course was converted from potable to reclaimed water usage by tapping into the City of San Diego's large reclaimed water line, saving another 97 million gallons for a total of 126 million gallons saved at the station. These savings equate to a decrease in water consumption of 15 percent from the previous year, reducing the station's consumption to 12 percent below the FY 2007 baseline. Five remaining phases of the reclaimed water project are planned for completion by FY 2010.

### United States Marine Corps



### Department of Veterans Affairs



### United States Marine Corps



## General Services Administration



## General Services Administration



## Department of the Interior



# RENEWABLE ENERGY AWARDS TO SMALL GROUPS

## General Services Administration, Northeast and Caribbean Region

**Brian Magden**                      **Ken Shutika**

Because of their expertise in procuring green power in New York and New Jersey, the National Park Service (NPS) asked the General Services Administration's (GSA) to procure green power for America's best known historical attractions on the east coast—the Statue of Liberty and Ellis Island. The procurement was conducted using an online auction platform owned and operated by the World Energy Exchange, the leading online exchange for energy and green commodities. GSA awarded a contract in FY 2006 to Pepco Energy Services, requiring an estimated 27 million kilowatt-hours (kWh) over a three year period from FY 2006 to FY 2009. Both landmarks are now using renewable energy equivalents from wind power, generated from the Mountaineer Wind Center in West Virginia, for 100 percent of their electricity needs. The final contract price was \$0.1037 cents per kWh which, in comparison to benchmarks developed at the time of the auction, yielded \$617,000 or 17.5 percent in cost avoidance for NPS.

## General Services Administration

### Frederick Murphy Record Center, Waltham, Massachusetts

**James Devir**                      **Donald Fuccillo**                      **Eric Keurulainen**  
**Sean Orgel**                      **Kathryn Thomas**

The Frederick C. Murphy Federal Center is home to the National Archives and Records Center (NARA), Northeast Region. The Center's roof, 144,000 square feet and exposed to full sunlight throughout the day, began nearing the end of its useful life, making it the perfect demonstration project for new ENERGY STAR cool roof technology. The General Services Administration's Energy Center Expertise worked with NARA to install a building integrated photovoltaic (BIPV) roof system made up of flexible, amorphous silicon panels. During FY 2007, the array generated 430 megawatt-hours of electricity, 340 of which was used on site and 90 of which was delivered back to the utility grid for a credit to the facility utility bill. This translates to about \$67,500 in annual electrical cost savings. In addition, fuel oil and natural gas consumption decreased on site by 24 percent and 36 percent respectively.

## Department of the Interior

### Fish and Wildlife Service, San Andres National Wildlife Refuge

**Coby Bartram**                      **Kevin Cobble**                      **Mark Orton**

The San Andres National Wildlife Refuge is home to 38 species of mammals and more than 150 species of birds, providing an important habitat for endangered desert bighorn sheep. In FY 2007, the Refuge installed a 6,000-Watt hybrid solar photovoltaic (PV)/wind energy system comprised of 4,200 Watts of grid-tied solar PV panels, two 35-Watt solar PV-powered parking lights, and a 1,800-Watt grid-tied wind generator. With only a partial year of renewable energy production in FY 2007, the system saved 43 million Btu, with energy intensity decreasing by 80 percent from the FY 2003 baseline. The project team overcame numerous obstacles to implement the project, obtaining funding from cost savings on other maintenance projects and technical advice from the local utility. As the first of its kind for the Fish and Wildlife Service's Southwest Region, the model system paves the way for similar installations throughout this and other Service regions.



## SUSTAINABLE DESIGN/HIGH PERFORMANCE BUILDINGS AWARD TO AN ORGANIZATION

Department of the Interior

U.S. Geological Survey, Woods Hole Science Center, Woods Hole, Massachusetts

The U.S. Geological Survey Woods Hole Science Center, using a FEMP technical assistance grant, completed a 4,400 square foot laboratory addition designed and constructed using the latest sustainable design principles and technologies. The sustainable facility increased the size of the existing building by 44 percent and will save 61 percent in annual energy consumption over a base case model through the use of active and passive solar technologies, natural ventilation and lighting strategies, increased insulation standards, and optimization of automated controls. The savings translate to 380.9 million Btu and \$4,300 per year. An additional savings of 6.4 billion Btu and \$20,000 per year is realized by the elimination of freezers located outside to an appropriate indoor storage facility. A vegetative roof, native landscaping, low light pollution, and a rain garden reduce the facility's impact on the natural environment.

## SUSTAINABLE DESIGN/HIGH PERFORMANCE BUILDINGS AWARD TO A SMALL GROUP

Fish and Wildlife Service, Department of the Interior

Ottawa National Wildlife Refuge, Oak Harbor, Ohio

Doug Brewer

Rick Frietsche

Dan Frisk

Andrew McDermott

Donna Stanek

The new Visitor Center at Ottawa National Wildlife Refuge replaced an old headquarters building that was constructed in the 1940s. This high-performance building was designed to be equivalent to a Leadership in Energy and Environmental Design (LEED™) "Silver" rating. The building's 12,684 square feet are heated and cooled by a pond-loop geothermal heat pump system, with geothermal radiant floor heating on the main level. The building also incorporates high-efficiency lighting controlled by motion and daylight sensors; point-of-use hot water heaters; high efficiency, low-E tinted windows; super insulation; a reflective metal roof; natural linoleum flooring; carpet with a high recycled content; low light pollution; rainwater gardens and holding ponds; restoration of wetland; and native planting. The sustainable design reduced the building's energy intensity by 51 percent in FY 2007 from the FY 2003 baseline.

## VEHICLE FLEET MANAGEMENT AWARD TO AN ORGANIZATION

Department of Energy

Princeton University Plasma Physics Laboratory, Princeton, New Jersey

In FY 2007, the Department of Energy's Princeton University Plasma Physics Laboratory (PPPL) first began using B-20 biodiesel as an alternative fuel for new utility vehicles and existing diesel-powered fleet vehicles. The use of this fuel in a new utility vehicle—the John Deere Gator—was groundbreaking, as this was the first time B-20 fuel was used in this vehicle. PPPL also reinstated the use of natural gas powered vehicles, obtaining three new full size pickup trucks from the General Services Administration. These efforts, along with managing vehicle use, allowed PPPL to reduce petroleum fuel from more than 7,200 gallons in the FY 2005 base year to just over 4,600 gallons in FY 2007. This reduction of 36 percent is nearly double the 2015 goal of 20 percent. The use of B-20 results in a reduced carbon footprint of more than 2,400 pounds of carbon dioxide. PPPL's alternative fuel program is growing, with plans to obtain additional flex fuel, diesel, and natural gas vehicles to augment the current fleet.

Department of the  
Interior



Department of the  
Interior



Department of  
Energy



## National Aeronautics and Space Administration



## United States Air Force



## United States Air Force



## VEHICLE FLEET MANAGEMENT AWARD TO AN INDIVIDUAL

### Bruce Chesson

#### National Aeronautics and Space Administration, Kennedy Space Center, Florida

At John F. Kennedy Space Center (KSC), Bruce Chesson has greatly increased the use of alternative fuels, reduced petroleum usage, and increased public awareness of alternative fuels. Mr. Chesson was instrumental in acquiring alternative-fueled vehicles for KSC, as well as procuring a contract to provide two Ethanol (E-85) service stations. Due to his efforts, KSC has increased its E-85 volume from 144 gallons to an average of 15,000 gallons per month. Use of E-85 flex fuel vehicles, 144 B-20 biodiesel and 123 compressed natural gas vehicles reduced KSC's petroleum fuel consumption in FY 2007 by more than 104,300 gallons from the FY 2005 base year. Mr. Chesson also developed several Space Act Agreements with Honda Motor Corporation, Bavarian Motor Works, and Hybrid Technologies, Inc. to partner and provide hydrogen-powered fuel cell and lithium-powered electric vehicles for demonstration, test, and evaluation, which led to improved education and technology for future alternative fueled vehicles at KSC.

## ENERGY EFFICIENCY/ENERGY PROGRAM MANAGEMENT AWARDS TO ORGANIZATIONS

### United States Air Force

#### Charleston Air Force Base, Charleston, South Carolina

Using an energy savings performance contract (ESPC), Charleston Air Force Base executed a project to replace the existing heating, ventilation, and air conditioning (HVAC) system with a combination of geothermal heat pumps (GHP) and high-efficiency air conditioning equipment. The project, financed at more than \$55 million, was the largest ESPC executed within the Air Mobility Command to date. Using an ESPC helped the base reduce its steam plant phase-out plan from an estimated 17 years to only two years, eliminating most of the steam distribution piping in the first year while maintaining the ability to back-feed the remaining sections during the winter months. The new GHP and HVAC equipment, along with additional measures financed by the ESPC including lighting retrofits, energy management control modifications, and water-saving equipment, saved the base more than 186 billion Btu, 31.7 million gallons of water, and \$2.3 million in FY 2007.

### United States Air Force

#### Eglin Air Force Base, 796th Civil Engineer Squadron

#### Eglin Air Force Base, Florida

In FY 2007, Eglin Air Force Base used two major program initiatives to save energy and reduce costs. The base teamed with Gulf Power Company and Southern Company Energy Solutions to implement energy efficiency projects through a utility energy services contract (UESC) that reduced consumption by more than 48 billion Btu and saved nearly \$1 million in energy costs. Measures included lighting upgrades, daylight harvesting controls, LED lighting retrofits, energy management control systems, central plant chilled water system optimization, boiler plant replacement, and chiller replacements. The base also purchased 3,300 megawatt-hours of renewable energy certificates to meet 2.5 percent of the renewable energy goal set by Executive Order 13423. A second UESC was executed with Gulf Power and Chevron Energy Solutions that will save an additional 36 billion Btu and \$700,000 annually.

# ENERGY EFFICIENCY/ENERGY PROGRAM MANAGEMENT AWARDS TO ORGANIZATIONS

## Environmental Protection Agency

### Research Triangle Park Campus, Research Triangle Park, North Carolina

The Environmental Protection Agency's (EPA) Research Triangle Park (RTP) campus constitutes the agency's largest laboratory complex, accounting for 46.5 percent of EPA's reportable energy consumption in FY 2007. RTP executed several extensive recommissioning projects in three of their largest facilities and used simple energy conservation measures in other facilities to achieve overall savings of more than 46 billion Btu and almost \$1.5 million in FY 2007. Because the RTP campus saved more energy and costs on a percentage basis than the entire agency, the campus helped EPA exceed its 3 percent FY 2007 energy reduction requirement by 34.6 percent. Additionally, because EPA made a green power purchase in FY 2007 equivalent to 100 percent of RTP's electricity use, the campus reduced its energy-related gas emissions by more than 37,000 metric tons of carbon dioxide compared to FY 2003.

## Department of the Navy

### Naval Surface Warfare Center Carderock Division

#### Philadelphia, Pennsylvania

Naval Surface Warfare Center Carderock Division occupies facilities at 10 sites in eight states and is responsible for research, development, test and evaluation, and fleet support and in-service engineering for surface and undersea vehicles. In FY 2007 Carderock Division collectively achieved a 10.1 percent reduction in energy intensity as compared to the FY 2003 baseline at its three largest energy-consuming sites in Bethesda, Maryland; Philadelphia, Pennsylvania; and Memphis, Tennessee. The Division invested more than \$5 million in energy projects that saved more than 86 billion Btu and \$1 million in FY 2007. Projects executed included cooling tower replacements and repairs, energy efficient lighting upgrades, installation of decentralized gas heating systems for remote buildings, installation of energy-efficient heating systems, steam and condensate line replacements, and multiple direct digital control system installations.

## Department of the Navy

### Naval Facilities Engineering Command

#### Naval Utilities and Energy Cost Saver Tiger Team Nationwide

The Department of the Navy's Utilities and Energy Cost Saver Tiger Team was created to address rising utility costs at Navy installations. Since its inception in 2005, the Team conducted initial and follow-up visits to 12 Navy installations, recommending low-cost and no-cost energy conservation opportunities that if fully implemented would result in more than \$6.5 million in cost savings. Recommendations include: monitoring HVAC control systems; reducing lighting in over-lit areas and using daylighting; surveying and repairing steam and compressed air distribution leaks and replacing insulation; conducting boiler tune-ups; sealing openings in the building envelope; installing programmable thermostats and occupancy sensors; shutting off HVAC equipment when not needed; and disconnecting front panel vending machine lighting and installing vending misers. As a direct result of the recommendations, installations implemented projects in FY 2007 that will result in savings of 163 billion Btu and \$3.5 million.

## Environmental Protection Agency



## Department of the Navy



## Department of the Navy





## United States Air Force



## Department of the Army



## Department of the Navy



# ENERGY EFFICIENCY/ENERGY PROGRAM MANAGEMENT AWARDS TO SMALL GROUPS

## United States Air Force

### Nellis Air Force Base, Nevada

**Michelle Price**

**Jeff Blazi**

In FY 2007 Nellis Air Force Base's energy management team implemented a three-part energy program. The program includes developing infrastructure projects that increase the use of renewable energy, improve base infrastructure, and reduce energy consumption; implementing a no-cost, low-cost conservation program; and creating a marketing campaign to develop base-wide support for new energy initiatives. The team completed construction of a 14.2 megawatt photovoltaic array—the largest in America—that will provide Nellis with 30 million kilowatt-hours of green power and save about \$1 million annually. A combination of spectrally-selective window film and ceramic paint was used on a number of base facilities where 99 percent of radiant energy is reflected or re-emitted, saving about \$100,000 in electricity costs for one 56,000 square foot facility alone. Further, a new base energy policy outlined numerous changes to base energy operations that saved more than \$1.3 million in FY 2007.

## Department of the Army

### Fort Hood Department of Public Works, Fort Hood, Texas

**Tony Estes**

**Aaron Fry**

**Bobby Lynn**

**Bill Mallow**

**Richard Strohl**

Fort Hood leveraged technology to manage its facilities and utilities through a Web-based system—the first of its kind to be successfully implemented by the Army. Working with the Construction Engineering Research Laboratory and the Army Corps of Engineers (COE), the Fort Hood team used an energy savings performance contract to implement an "open communications system" to serve as a single platform for facilities and utilities management. In FY 2007, the utility management and control system generated more than \$200,000 in energy cost savings, with savings increasing as new facilities are added. Additionally, the system strictly adheres to newly developed guidance developed by the COE and serves as a benchmark for the Army. This helps reduce the agency's dependence on multiple proprietary, incompatible control systems that cost millions of dollars to manage and maintain.

## Department of the Navy

### Naval Base Ventura County, Port Hueneme, California

**Robert Demyanovich**

**Ken Mears**

**Thomas Santoianni**

**Richard Spiessl**

In FY 2007, Naval Base Ventura County reduced its energy use by nearly 8 percent from the previous year and reduced energy intensity 14 percent from a FY 2003 baseline. Projects included lighting upgrades; heating, air conditioning, and ventilation upgrades; photovoltaic and skylight projects; and water-conservation projects including irrigation retrofits and xeriscaping. New six-lamp high-bay T8 spectrally-enhanced fluorescent fixtures were installed in 13 warehouses and hangars, emitting light similar to daylight and reducing energy consumption by 50 percent. To reduce peak electric loads, the Base participated in a utility company demand bidding program, with personnel turning off all non-essential electric loads and performing all energy-intensive activities in the morning hours. The base held 18 energy-reduction events that resulted in savings of more than \$42,000 over the summer months. All together, these initiatives saved 30.6 billion Btu and almost \$800,000 in FY 2007.

## ENERGY EFFICIENCY/ENERGY PROGRAM MANAGEMENT AWARDS TO AN INDIVIDUAL

United States Air Force

Moody Air Force Base, Moody Air Force Base, Georgia

Robert Montgomery

Robert Montgomery's creative energy management allowed Moody Air Force Base to save approximately 40 percent of its energy costs in FY 2007. Mr. Montgomery redirected the efforts of an energy savings performance contract that previously identified \$900,000 in energy projects to tackle high energy consumption locations. The result was five new projects valued at more than \$5 million, including upgrading more than 14,000 fluorescent lamps and fixtures; replacing two central natural gas heating plants with infrared ceramic heaters; installing a Propane Air-Mix Emergency Reserve Plant; installing four state-of-the-art diesel generators providing total power to four of the largest Base facilities; and installing energy management control systems at 11 high energy use facilities. These and other projects implemented in FY 2007 resulted in an 8 percent reduction in energy consumption and savings of \$310,000 in natural gas and \$445,000 in electricity.



*The Nellis Solar Power System, Nellis Air Force Base, Nevada*

## EXCEPTIONAL SERVICES AWARDS TO INDIVIDUALS

Environmental Protection Agency

Fort Meade Environmental Science Center, Fort Meade, Maryland

Rick Dreisch

Rick Dreisch, facility manager of EPA's Environmental Science Center (ESC), has emerged as one of the most proactive facility managers in the agency in the areas of energy and water conservation. During his multi-decade tenure at EPA, including his last eight years at ESC, Mr. Dreisch has demonstrated a hands-on, forward thinking approach to facility management. Since ESC opened in 1999, he has championed project and initiatives that saved nearly 23 billion Btu and nearly seven million gallons of water, including the implementation of EPA's first commissioning/re-commissioning project. In FY 2007, he continued to support a comprehensive, three-phase assessment of ESC's ventilation systems and building controls aimed at reducing energy use over the long term. Water-saving projects have included optimization of ESC's reverse osmosis system, the reduction of cooling tower blowdown, and installation of native landscaping. During FY 2007, despite an ever-increasing demand for energy and water to support ESC's 70 laboratory spaces, Mr. Dreisch's efforts have helped to reduce the facility's annual energy use by nearly 30 percent—resulting in \$250,000 in avoided costs—and annual water use by 57 percent since FY 1999.

United States  
Air Force



Environmental  
Protection Agency



## Department of the Navy



## Tennessee Valley Authority



# EXCEPTIONAL SERVICES AWARDS TO INDIVIDUALS

## Department of the Navy

### Navy Region Southwest, San Diego, California

#### Bernard Lindsey

Bernard Lindsey, Utilities and Energy Program Manager for Navy Region Southwest (NRSW), leads a team of professionals from 10 major installations in California and Nevada managing the region's \$101 million utility budget. He is in all respects a leader in the Navy Energy Program and an influential voice in setting Navy energy policies. He chairs the Regional Energy Steering Committee, and is on the Southwest Renewable Energy Action Team striving to provide near 100 percent renewable electricity. He manages the largest resource efficiency manager (REM) program in the Federal government, and has played a major role in the Navy's efforts to roll out REMs to regions across the globe, providing invaluable assistance in helping shape its programs. Under his direction, NRSW reduced energy use in FY 2007 by more than 16 percent from the FY 2003 baseline, saved 376 billion Btu, conserved 380 million gallons of water, and reduced the region's utility costs by about \$8.5 million or 9 percent. Prior to managing the NRSW energy program, Mr. Lindsey was instrumental in implementing a \$105 million cogeneration project at Fleet Activity Yokosuka, Japan, with projected annual savings of \$11 million in energy costs and 305 million Btu.

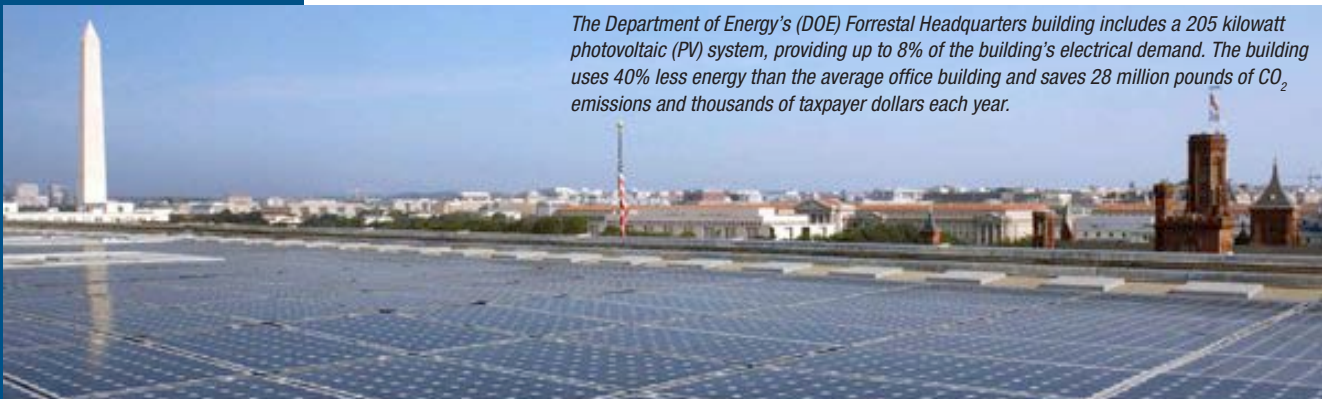
## Tennessee Valley Authority

### Chattanooga, Tennessee

#### Stephen Brothers

Stephen Brothers has served the Tennessee Valley Authority (TVA) for 29 years, with the majority of his time managing TVA's internal energy management program. Under his direction and leadership, TVA has achieved a 32 percent energy reduction in standard facilities since 1985 and a 25 percent energy reduction in industrial facilities since 1990, resulting in cumulative savings of \$40.1 million and \$1.6 million respectively. The Department of Energy's FY 2006 Annual Report to Congress on Federal government Energy Management and Conservation Programs lists TVA's Federal goal buildings as the most efficient in the Federal government. Over the years, Mr. Brothers has promoted the use of fuel-efficient vehicles, helping TVA improve its sedan fuel efficiency by 44 percent since 1975 and its truck efficiency by 35 percent since 1980. The program conducts annual building energy surveys that also uncover water conservation opportunities. During recent years, TVA has cut its potable water use by 2 percent, and is working toward meeting the new mandated goals. In FY 2007 alone, efforts led by Mr. Brothers saved 77.8 billion Btu and \$4.6 million in energy costs.

*The Department of Energy's (DOE) Forrestal Headquarters building includes a 205 kilowatt photovoltaic (PV) system, providing up to 8% of the building's electrical demand. The building uses 40% less energy than the average office building and saves 28 million pounds of CO<sub>2</sub> emissions and thousands of taxpayer dollars each year.*





# SUMMARY

Building a Federal Government that is powered by clean and secure energy is a high priority for the American people. They are calling on Federal agencies to dramatically reduce dependence on foreign sources of oil; reduce the burden of volatile energy prices to operate and maintain Federal facilities; and increase the deployment of renewable energy technologies. To accomplish these goals, agencies must lead by example through the Government's own actions and change the way they do business in the Federal sector.

During 2008, a key to the great progress made in meeting these goals was by increasing the use of alternative financing through Utility Energy Service Contracts and Super Energy Savings Performance Contracts. The acceleration of these and other financing vehicles helped to significantly lower the appropriated Federal funding necessary to power our laboratories, military bases, hospitals, and office buildings. In addition, agencies are also increasing the use of alternative fuel vehicles in Federal fleets to reduce our dependence on foreign fossil fuels and their resultant greenhouse gas emissions.

Achieving energy independence will not be easy. It will require a great commitment. But the Federal Government has always risen to great challenges. We are moving to act quickly and boldly to transform the Federal sector – from our cars and fuels, to our offices and buildings.

As we move forward, FEMP is committed to provide clarity of direction; determined to stimulate streamlined ways to finance energy projects; and dedicated to provide the technical expertise to enhance energy security, environmental excellence, and cost reduction in the Federal government.



*The Joseph P. Addabbo Federal Building in Jamaica, NY, replaced the entire building's chiller plant and is currently completing the final phase of related upgrades to its building control system.*



*The Naval Surface Warfare Center Panama City, FL, with technical assistance from the host command Public Works Department and the Naval Support Activity Panama City, retrofitted a 400-ton state-of-the-art chiller compressor system into existing chillers.*



*The Department of Energy's Forrestal Headquarters building in Washington, DC, achieved a score of 88 on the ENERGY STAR rating scale, outperforming almost 90 percent of office buildings nationwide.*



*The Department of Energy's Federal Energy Management Program's (FEMP) mission is to facilitate the Federal government's implementation of sound, cost-effective energy management and investment practices to enhance the nation's energy security and environmental stewardship.*



U.S. DEPARTMENT OF  
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