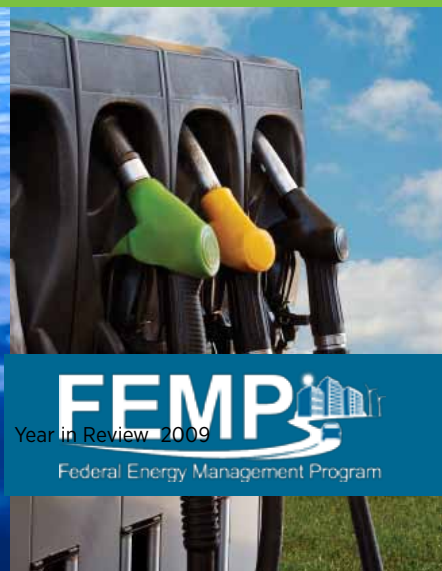




FEMP YEAR in REVIEW 2009



Federal Energy Management Program YEAR in REVIEW 2009

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United States Marine Corps Marine Corps Logistics Base Barstow, California

The Marine Corps' first large-scale wind turbine went on-line in March 2009 at Marine Corps Logistics Base Barstow. The 1.5 megawatt wind turbine is expected to generate an average of 3,000-megawatt hours of renewable power each year. Not only will the turbine satisfy at least a third of the base's brown power requirement and replace it with green power; it will also serve as a strong symbol of the Marine Corps' commitment to reduce greenhouse gas emissions and other pollutants associated with the production of electricity and the burning of fossil fuels. This facility is featured as a 2009 *You Have the Power* success story.

INTRODUCTION

In 2009, the Federal Energy Management Program (FEMP) undertook an ambitious reorganization of its program structure to be more responsive to the needs of its Federal agency customers. In this *Year in Review 2009*, you will learn more about FEMP achievements under its new program areas:

- **Project Transaction Services:** facilitating the use of alternative finance mechanisms to support Federal energy and environmental improvement projects;
- **Applied Technology Services:** providing expertise and technical support services to help agencies meet their energy and environmental goals; and
- **Decision Support Services:** improving the quality of interagency planning, reporting and communication.

In addition to the broad goals outlined above, FEMP focused on the following key areas:

- Sound investment and management of projects that support the American Recovery and Reinvestment Act (ARRA);
- Support of Executive Order 13514, *Federal Leadership in Environmental, Energy, and Economic Performance* requirements;
- Strong oversight of Energy Savings Performance Contracting (ESPC), including life-of-contract support; and
- Expanding technical assistance and leveraging customer service assistance relationships, with an emphasis on the fundamentals of our mission.

In the *Year in Review 2009* you will see how FEMP is proactively partnering with Federal agencies and private sector organizations to bring clean, reliable, and affordable energy technologies to Federal facilities. In the sidebars throughout this document, you will find information about a selection of special projects nominated for recognition by agencies that participate in the FEMP *You Have the Power* Campaign. These special projects illustrate the depth and breadth of environmental excellence in the Federal sector.

As we turn our attention toward many new challenges in 2010, FEMP remains committed to the accelerated use of high-efficiency vehicles and alternative fuels, the operation of high-performance sustainable buildings, and the increased use of renewable energy generated on Federal facilities and lands.

We look forward to working with you.

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



**U.S. Department of Energy
Savannah River
Biomass Steam Plant
Savannah, GA**

The Savannah River Biomass Steam Plant is one of the nation's largest. Funded by an Energy Savings Performance Contract (ESPC), it is estimated to save \$34 million a year in energy, operations, and maintenance costs. Two 30,000 lbs/hr steam boilers were constructed to replace the old coal fired boilers. The plant will run on about 322,000 tons of woody biomass per year, including waste from timber companies, pellets, and other wood debris. The primary purpose of the plant is steam production, however, it will also produce about 20 megawatts of electricity as a byproduct. In 2009 this plant was featured as a FEMP *You Have the Power* success story.

ENERGY SAVINGS PERFORMANCE CONTRACTS (ESPCS)

During FY2009, the investment value of Super ESPC projects in development government-wide remained relatively constant at more than \$1 billion. Additionally, 23 new Super ESPC contracts were awarded government-wide, with a project investment of \$433 million, making 2009 the best year ever with the highest annual investment total since the program's inception in 1998, and with corresponding guaranteed cost savings of more than \$1 billion. The 23 projects will save 85 trillion Btu during their contract terms.

During December 2009, the Department of Energy (DOE) awarded 16 new indefinite-delivery, indefinite-quantity (IDIQ) Energy Savings Performance Contracts (ESPCs), each with a contract ceiling of \$5 billion, for a combined total value of \$80 billion. The DOE's Office of Energy Efficiency and Renewable Energy (EERE) and Federal Energy Management Office (FEMP) has enhanced the management of Super Energy Savings Performance Contracts, and implemented improvements directed by Assistant Secretary Zoi's July 17, 2009 Memorandum for DOE's use of ESPCs.

FEMP also expanded its free services to facilitate Super ESPCs (SESPCs) at Federal agencies. These included a significant increase in training efforts; a revamping of three-day workshops; an increase from five workshops per fiscal year to eight workshops per fiscal year; the addition of specialized onsite, on-request training; and the introduction of SESPC, "Pricing and Financing," and "Alternative Financing Options" webinars (web-based seminars) for a total of 24 webinars in one calendar year. Seven hundred sixty five government personnel participated in ESPC training in FY2009.

UTILITY ENERGY SERVICE CONTRACTS (UESCS)

In FY2009, FEMP's Utility Energy Service Contracts Program was active within the following areas:

Training and Strategic Partnering Sessions

FEMP continued to train new utility partners and agency acquisition teams throughout the United States. Over 200 participants received training during classroom workshops. The Canoochee Electric Cooperative, Philadelphia Gas Works, Georgia Power, Pacific Gas & Electricity (PG&E) and the Defense Energy Support Center (DESC)'s utility teams relied on FEMP to provide customized training and strategic partnering sessions for Federal customers such as the Department of Defense, GSA, and the Coast Guard.

The UESC program also produced a series of four "Introduction to UESC" webinars for the FEMP Utility Program.

In April 2009, the Bay Area Parks/PGE&E Strategic Partnership meeting held in San Francisco, California led to PG&E offering free audits and no-cost lighting change-outs to all Bay area parks. The UESC program also hosted workshops in Williamsburg, Virginia and Biloxi, Mississippi during the Federal Utility Partnership Working Group (FUPWG) meetings, as well as a workshop prior to GovEnergy 2009 in Providence, Rhode Island.

The Utility Program also supported the Energy Lawyers and Contracting Officers Working Group by hosting two sessions in conjunction with FUPWG meetings and a third in conjunction with GovEnergy. The Working Group developed guidance on retaining utility rebates and incentives for Federal agencies, and created draft templates for Utility Renewable Energy Service Contracts (URESC).

Project Support and Technical Assistance

FEMP's utility staff facilitated several key UESC projects, including GSA's \$80 million cogeneration project with Washington Gas. The utility staff's training and facilitation efforts resulted in the award of projects at NASA Langley (\$9.4 million) and over \$8 million in project awards for the U.S. Navy throughout the Mid-Atlantic and Southeast states.

FEMP continued to assist its Federal customers in obtaining incentives from utilities (and other state-based providers) by leveraging both financed and appropriated energy projects. Fort Dix in New Jersey received a \$1.765 million rebate for a large solar photovoltaic array and another \$670,000 rebate for energy efficiency measures as part of an energy savings performance contract. In addition, Ft. Dix receives \$685,000 per year for the solar renewable energy credits (SREC's) generated from the solar array.

In support of FEMP's Energy SmartPARKS efforts, a team from FEMP visited the Great

Project Transaction Services

Smoky Mountains National Park (GSMNP) to discuss sustainable energy opportunities at Cades Cove Visitor Center, the Great Smoky Mountains Institute at Tremont (GSMIT), and the Sugarlands Visitor Center, as well as specific energy conservation features of the new Oconaluftee Visitor Center, currently in the design phase. The team identified several possible projects and will help facilitate a partnership between the National Parks Service (NPS) and potential private sector manufacturers in hopes for NPS to submit projects for the Energy SmartPARKS Partnership. NPS is interested in FEMP's continuing participation in the new Oconaluftee Visitor Center design process to support sustainable practices under consideration as a follow-up to the Value Added Workshop held in August 2009. NPS also expressed an interest for FEMP to help identify additional energy conservation improvements at other GSMNP buildings in future visits.

FEMP's technical and contractual assistance led to the signing of a new \$40 million UESC agreement between the Bonneville Power Administration and the U.S. Army – Ft. Lewis. FEMP helped to facilitate the development of an additional project to decentralize the current steam system at Ft. Lewis' hospital facilities. Additionally, FEMP worked with the U.S. Fish and Wildlife Services refuge and their serving utility, Avista Energy in eastern Washington, to develop potential energy efficiency projects at the refuge.

Tools and Resources

In the spring of 2009, FEMP published a new edition of the Enabling Documents for Utility Energy Services Contracts. The documents were developed through a collaborative effort of a FUPWG subgroup. Federal agency teams and utility partners alike, use the Enabling Documents as a primary resource in the implementation of comprehensive energy and dollar saving UESC projects. High demand for the new Enabling Documents called for a second and third printing in

FY2009.

In response to several requests, FEMP provided a revised Federal facilities utility list, which covers Federal facilities that are served by a specific utility. FEMP also updated the FEMP GIS and Quick Sort tools with revised facility information from selected agencies, ensuring that both tools used the same facility database.

DOE 430.2B ACHIEVEMENTS

The execution of DOE Order 430.2B, requires DOE to meet and exceed requirements stipulated in E.O. 13423 and the Energy Policy Act of 2005. Notable accomplishments in FY2009 include the awarding of ESPCs at four DOE sites: Y-12 Plant, Pantex, Argonne National Laboratory, and Savannah River Site (SRS). These projects represent over \$200 million in project investment for energy efficiency and renewable energy improvements.

DOE awarded five projects with an investment value of \$230 million and corresponding guaranteed cost savings of nearly \$1.5 billion. Included among these is the Savannah River Site biomass project, the largest Federal ESPC project to date. The five projects will save 76.1 trillion Btu during their contract terms. Since 1992, more than 460 ESPC projects have been awarded by 19 different Federal agencies in 47 states, with guaranteed cost savings to the Federal government of \$7.1 billion.

Projects awarded ESPC contracts include a large biomass-powered cogeneration plant at SRS, lighting and HVAC upgrades at Argonne's Advanced Photon Source, and chiller plant upgrades at the Y-12 plant.

In addition, all major DOE sites have submitted executable plan updates, as required by DOE 430.2B. These plans describe the steps that each site will take to reduce their energy and water consumption, increase their use of renewable energy, expand their portfolio of high performance sustainable buildings, improve fleet energy management, and broaden the use of metering for electricity and other utilities.



**U.S. Department of the Navy
Commander Fleet Activities
Yokosuka, Japan**

The Navy designed and constructed a state of the art cogeneration plant at Commander Fleet Activities Yokosuka by leveraging an Energy Savings Performance Contract (ESPC) to avoid up front capital costs. The 39 megawatt plant is guaranteed to save the Navy \$358 million over the 20 year term of the contract, while dramatically reducing pollution and greenhouse gas emissions. In 2009 this facility was highlighted as one of FEMP's *You Have the Power* success stories.

Applied Technology Services



U.S. Department of Commerce

The Baltimore/Washington Weather Forecast Office (WFO) in Sterling, Virginia is one of 122 WFOs that monitor and predict the weather over the nation. The Baltimore/Washington WFO is the fifth WFO in the nation built to LEED standards, with a Silver status anticipated in FY2010. The building incorporates many sustainable technologies such as daylight harvesting, dark sky compliant exterior lighting, an adiabatic white roof, recycled materials in construction and interior furnishings; water conserving fixtures such as dual flush toilets and tankless hot water; and reduced paving to minimize storm water runoff. In 2009 this facility was featured as a *You Have the Power* success story.

FEDERAL FLEET

The Federal fleet in the United States consists of nearly 600,000 vehicles, including over 137,000 alternative fuel vehicles (AFVs). Its operation is governed by Federal mandates to reduce petroleum use and increase alternative fuel use and AFV acquisitions. The FEMP Federal Fleet Program provides guidance and support to Federal agencies to meet these mandates as they efficiently operate vehicle fleets. In FY2009, the FEMP Federal Fleet Program:

- Supported the development of an automated system that efficiently processed over 90,000 requests for alternative fuel use waivers for vehicles without access to alternative fuel;
- Used AFV waivers to locate over 70,000 Federal AFVs without access to alternative fuel, and publically posted data on the Internet. To date, private sector fuel providers have, using this data, installed alternative fuel infrastructure at over 60 sites that did not previously have access to alternative fuel;
- Developed, updated, and published multiple guidance documents, including two annual reports, a Frequently Asked Questions document, and a “History of Federal Fleets” document.
- Collected, analyzed, and submitted Federal agency renewable fuel pump installation data and Transportation Scorecard data to OMB;
- Began developing a “Master Guidance Document” that combines all fleet requirements, guidance, and strategies into a single, accessible document;
- Supported petroleum reduction opportunities at Department of Defense (DoD) sites, including the “Net Zero” analyses at Marine Corps Air Station Miramar; and
- Assisted efforts in developing technical analysis tools that identify extremely efficient petroleum reduction and AFV acquisition strategies, at facilities such as Idaho National Laboratory (INL).

The FEMP Federal Fleet Program continues active outreach and communication efforts. In 2009, FEMP developed a “FedFleet Toolkit” and Federal Fleet Web site; presented over 10 briefs at two major conferences; and participated in four regional workshops that brought together Federal and State fleet representatives, Clean Cities personnel, and alternative fuel providers to collaborate on the development of alternative fuel infrastructure. In October 2009, FEMP hosted the second Federal Fleet Industry Day conference in Arlington, VA.

RENEWABLE ENERGY

During FY2009, the FEMP Renewable Energy Program focused on areas that increase the amount of renewable energy used by the government and DOE’s compliance with various laws, regulations, and Executive Orders.

Assessment

FEMP continued to conduct Renewable Energy Assessments at DOE sites to evaluate renewable energy potential. Sites assessed included Lawrence Berkeley National Laboratory, Lawrence Livermore National Laboratory, Stanford Linear Accelerator Center, and Brookhaven National Laboratory. FEMP also analyzed and prepared summaries of the renewable energy provisions of Executable Plans submitted by DOE sites.

FEMP provided Renewable Energy Optimization studies to various agencies, including the DoD at Fort Irwin, Marine Corps Air Station Miramar, and 81 U.S. domestic Air Force Bases. Assessments will be used to develop a phased plan aimed at achieving net zero energy, which can be used as a model for net zero energy planning at other military installations.¹

Reporting

In addition to supporting the “Annual Report to Congress” concerning Federal energy use, FEMP conducted a separate analysis of Federal renewable energy usage and submitted this report for DOE concurrence.

Education & Communication

In FY2009, FEMP launched a renewable energy webinar training series to educate Federal energy managers about best practices. FEMP also conducted three meetings of the Renewable Energy Working Group, and hosted presentations at the annual GovEnergy conference. Preliminary training on Executive Order 13423 was also conducted at the GovEnergy conference and

¹Although the Net Zero Energy installation effort was funded with Integrated Development money from EERE, FEMP provides Headquarters oversight.

Applied Technology Services

the Renewable Energy Working Group. In addition, the renewable energy section of the FEMP web site was updated, reorganized, and streamlined.

FEMP published a case study on a combined solar photovoltaic and solar hot water system for swimming pools at Marine Corps Base Camp Pendleton, which provides an overview of the project and technology, additional information resources, and contact information to assist Federal energy managers interested in implementing similar renewable energy projects.

Project Development & Technical Assistance

The FEMP Renewable Energy program offered technical assistance on the following projects:

- ESPC contracts for three biomass boilers at the Savannah River Site to replace existing and aging coal-fired boilers;
- ESPC contract for solar powered lights at remote ranges at the Nevada Test Site;
- Twenty year Power Purchase Agreement (PPA) to finance the installation of a 750 kW PV system and Renewable Fuel Heating Plant (biomass) at NREL;
- Financial and technical assistance to DOE laboratories, including National Renewable Energy Laboratory (NREL), Oak Ridge National Laboratory (ORNL), the National Energy Technology Laboratory, Argonne National Laboratory, and Brookhaven National Laboratory, to select and determine the best funding vehicle for ESPC projects;
- Renewable Energy Optimization studies at 31 DOE sites; and
- Technical and business planning support in collaboration with the DOE Solar Program to assist GSA with photovoltaic arrays projects as part of GSA Recovery Act Green Building projects.

Renewable Energy Center of Excellence

FEMP teamed with the Assistant Secretary of the Army for Installations and Environment (ASA/I&E) to develop Fort Bliss, TX into a Renewable Energy Center of Excellence.

A Tiger Team was convened to evaluate the renewable energy potential of Fort Bliss and to develop an energy master plan. Major General Bromberg presented the Tiger Team Report to the Secretary of the Army and the Army Senior Energy Council. This project will carry into FY2010.

LABORATORIES FOR THE 21st CENTURY

FEMP provided specialized technical assistance on energy efficiency measures for laboratories to the Department of Homeland Security (DHS), the Department of Defense (DoD), the Department of Energy (DOE), the Environmental Protection Agency (EPA), National Oceanic and Atmospheric Administration (NOAA), and the United States Department of Agriculture (USDA). Also, in collaboration with EPA, FEMP continued to expand and enhance the Labs21 suite of tools. The Labs21 toolkit remains the foremost resource on laboratory energy efficiency. The Benchmarking tool, Environmental Performance Criteria web site, Equipment wiki site, and Design Process web site collectively get over 1500 unique visitors per month. The Labs21 Benchmarking tool now has energy use data on over 200 laboratory buildings in the U.S, which represents the largest publicly available dataset for benchmarking laboratory buildings.

FEMP developed the Climate Neutral Research Campus initiative and a supporting web site. The initiative lays out steps toward net zero campuses, and provides options for optimizing technology for buildings, transportation, behavior change, energy supply and source, and offsets. The site will feature a tool that visualizes carbon emission associated with energy use by sector, and allow users to forecast the impact of various emissions reduction strategies.

DATA CENTERS

In FY2009, FEMP offered technical assistance to optimize data center operations at DoD, DOE, DOS, GSA, and SSA utilizing the Data Center Profiler tool developed by



**General Services Administration
Federal Office Building, Region 10
Seattle, Washington**

The historic GSA Federal Office Building, Seattle, is one of the most efficient in the Federal government's inventory. Building upgrades included the installation of highly efficient lighting, improved elevator controls, and new building control system panels. The project received \$75,000 in utility rebates from Seattle City Light. Using less than 30,000 Btu's per gross square foot, it earned an Energy Star rating of 99. The Building Owners and Managers Association International (BOMA) selected it as the winner for "Best Energy Performance" in a contest among 59 buildings in the Puget Sound area. In 2009 this building was featured as a *You Have the Power* success story.

the Industrial Technologies Program. FEMP also piloted a DOE/American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) Data Center Course at the GovEnergy conference and provided webinars and training to operators of existing data centers within DOE and GSA. Expertise and experience gleaned from these outreach

Applied Technology Services



U.S. Department of Health and Human Services Lawton Indian Hospital Lawton, OK

The U.S. Department of Health and Human Services, Indian Health Service (IHS) Oklahoma City Area, expanded the clinical space at the Lawton Indian Hospital to pursue a LEED Silver certification. The expansion design included sustainable features such as energy efficient lighting and controls, daylighting, Energy Star roofing, high efficiency HVAC equipment with automated controls, renewable electricity procurement and healthy, natural and recycled building materials. The estimated annual energy savings of the sustainable design are 11.9 percent for electricity and 41.6 percent for natural gas. In 2009 this hospital was highlighted as a *You Have the Power* success story.

efforts were summarized in a best practice guide for data center design and operation. FEMP continues work with industry groups, such as Green Grid, to develop industry standards for energy efficient data centers.

INDUSTRIAL FACILITIES INITIATIVE

FEMP's Industrial Facilities Initiative (IFI) is a partnership with DOE's Industrial Technologies Program's BestPractices initiative. IFI assists Federal industrial facilities with plant-wide and system-specific assessments to identify energy, water, and waste reduction recommendations. BestPractices Qualified Specialists, Industrial Assessment Centers, and ORNL staff conduct assessments. In FY2009, FEMP introduced a webinar, "Pumping System Assessment Basics," to teach agency personnel about the Pumping System Assessment tool and pumping systems efficiency improvements. More than 58 participants from DoD and DOE attended the webinar.

FEMP also sponsored an IFI Compressed Air Assessment at the National Aeronautic and Space Administration's (NASA) Stennis Space Center that identified over \$56,000 and 2,700 million Btu in cost and energy savings. Another assessment at the Federal Aviation Administration's (FAA) Mike Monroney Center in Oklahoma City, indicated potential savings of \$164,000 and 15,100 million Btu. Additional assessments are underway at the Maritime Administration's Ready Reserve Fleet and National Defense Reserve Fleet, DOE's Y-12 National Security Complex in Tennessee, and at Keesler Air Force Base in Mississippi.

COMBINED HEAT AND POWER

FEMP's Combined Heat and Power (CHP) program makes information and technical assistance on CHP technologies available to Federal agencies. FEMP provided CHP Quick Screenings for three Veterans Affairs (VA) medical centers in West Roxbury and Jamaica Plain, Massachusetts and New Haven, Connecticut. Additional CHP screenings are being conducted for the USDA's Western Human Nutrition Research Center in California, and the GSA's O'Neil Federal Building in Massachusetts.

In addition to CHP Quick Screenings, FEMP provided technical review of proposals for biomass/CHP applications at two VA Medical Centers. An independent analysis was performed for the White River Junction Medical Center in Vermont and the Togus Medical Center in Maine. Follow-up activities to prior screenings indicate that the US Army Garrison/Research Lab in Maryland and the Navy's Dal Molin Airfield in Italy are moving forward with design of CHP installations.

WATER

FEMP provided a water webinar training course for delivery to DOE's sites. The training focused on water management planning and executable plan development. FEMP also initiated development of a web-based self-paced water training tool that will be ready for testing by agencies in early FY2010. The training covers legislative overview, water management planning, cost of water/wastewater calculation, water auditing and water balance, facility indoor and outdoor water efficiency, process water efficiency, meter metering, and water project financing.

The FEMP web site section on water efficiency was revamped and updated, and case study information was added to support and highlight best management practices. Six new case studies were developed covering topics such as water re-use, efficient plumbing fixtures, leak detection and repair, industrial process water efficiency, and landscape and irrigation management. Agencies contributing to the case studies included the U.S. Army, DOE, VA, and the U.S. Air Force.

NEW TECHNOLOGIES

In FY2009, FEMP and GSA partnered in the development of a *Business Case and Action Plan for Smart Building Technologies*. FEMP also undertook sponsorship of updates to the National Park Services' Lighting Retrofit Guide, with a focus on exterior lighting.

In collaboration with private vendors, FEMP initiated development and demonstration of a state-of-the-art building monitoring and dashboard system at LBNL. The system is in initial demonstration, and will be commissioned and documented as a case study for other Federal agencies.

FEMP published a case study of LED and fiber optic lighting at a commissary within Fort Meade, Maryland. Evaluation of LED lighting technology within the freezers and the loading dock resulted in a 70 percent reduction in energy over the previous installed incandescent lighting technology.

Applied Technology Services

FEMP continued to work closely with the Navy's TechVal program to evaluate lighting technology upgrades at sites such as Pearl Harbor, HI; Naval Station Newport, RI; and the Navy Engineering Support Center in Ventura County, CA. FEMP is currently conducting duct sealant demonstrations at Naval Base Kitsap-Bremerton; Naval Air Station Joint Reserve Base Fort Worth, Texas, and Naval Station Newport.

PROCUREMENT

The Federal government is the largest volume buyer of energy-consuming products in the world. Federal agencies are required to specify and to buy ENERGY STAR™ qualified products or energy efficient products designated by FEMP. By procuring energy-efficient products, Federal buyers reduce the Federal Government's energy consumption and achieve large cost savings. In FY2009, FEMP continued to refine its offerings of tools and resources to help Federal buyers comply with these procurement requirements.

FEMP increased its online database of purchasing specifications "fact sheets", which provide product information about energy efficient products to Federal buyers. FEMP also provided a web-based cost calculator that allows Federal buyers to use local conditions, such as utility prices, to estimate product-related energy savings.

Federal buyers are required to purchase products with a standby power level of 1 watt or less. In response, FEMP unveiled the web-based Standby Power Data Center in July 2009, which provides lists of qualifying electronic products that meet Federal requirements. The Center allows manufacturers to submit data for their qualifying products easily.

FEMP presented information about new procurement tools and resources at the Federal Environmental Symposium and GovEnergy. FEMP also regularly fields buyer and vendor requests for more information.

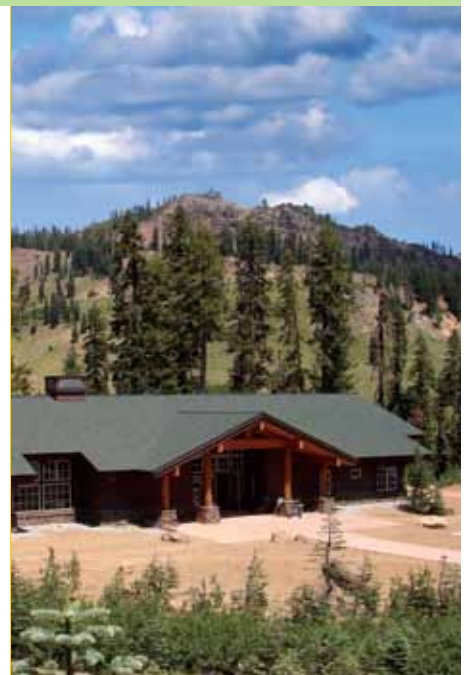
SUSTAINABILITY DESIGN PROJECTS

FEMP continues to chair the Interagency Sustainability Working Group (ISWG), which leads the Federal Government's implementation and integration of sustainable building laws, regulations, and presidential directives. During the year, the ISWG met five times to exchange information on high performance and sustainable building, and to develop technical and reporting guidance. In December 2008, the ISWG delivered recommended guidance to the Office of Management and Budget (OMB) and the Council on Environmental Quality (CEQ) on implementing the sustainability requirements of Executive Order 13423.

Throughout 2009, FEMP worked closely with other agencies to create, disseminate, and train Federal employees on sustainable building assessment tools. FEMP partnered with EPA and GSA to develop the Federal High Performance Sustainable Buildings Checklist, which assists agencies in assessing their existing building stock against the Guiding Principles for Sustainable Buildings, and with reporting on their progress in meeting Federal requirements. Using this tool, Federal workers can conduct building walkthrough assessments, track and view progress on each Guiding Principle, upload compliance documents, and create a portfolio-wide sustainability report.

As of June 2009, 141 Federal buildings have earned green building certification under the LEED (Leadership in Energy and Environmental Design) rating system, totaling about 20 million square feet at 18 Federal agencies. Federal LEED buildings currently represent over 5 percent of all LEED-certified buildings, whereas Federal buildings comprise 1.5 percent of all buildings in United States.

DOE continued efforts to green its building stock by developing an Existing Building Assessment Tool to identify and prioritize sustainability projects. The Agency's dedication to sustainable building principles is reflected in its real property portfolio, which currently features 20 LEED-certified



Department of the Interior Lassen Volcanic National Park Visitor Center, Mineral, California

The new visitor center at Lassen Volcanic National Park uses a whole building, sustainable design approach that includes a high efficiency 10-ton ground source heating and cooling system; a 30 kW photovoltaic system; automated daylight controls; super insulation; and incandescent-free lighting throughout. It conserves water with dual flush toilets, waterless urinals, and low-flow fixtures, while native plants are used for landscaping to avoid the need for irrigation. Approximately 250,000 people will visit the new visitor center each year. The building achieved a LEED Platinum certification and is the first year-round LEED Platinum building in the National Park System as well as the first Platinum Federal building in the State of California. In 2009 this facility was featured as a *You Have the Power* success story.

buildings. In June, DOE issued the Acquisition Letter, "Greening Considerations under Awards Using American Recovery and Reinvestment Act of 2009 Funding" to ensure that all ARRA funded projects contain sustainability requirements.

Decision Support Services



President Barack Obama signed Executive Order 13514, which focuses on improving Federal environmental, energy, and economic performance, and expands the energy reduction and environmental requirements of Executive Order 13423 by making greenhouse gas management a priority for the Federal Government.

NEW EXECUTIVE ORDER 13514

On October 5, 2009, President Barack Obama signed Executive Order 13514. E.O. 13514 expands the energy reduction and environmental requirements of E.O. 13423 by making greenhouse gas management a priority for the Federal Government.

Under the new E.O., Federal agencies are required to measure, manage, and reduce greenhouse gas emissions toward specific agency-defined targets. Agencies also must:

- Reduce vehicle fleet petroleum use 30 percent by 2020;
- Improve water efficiency 26 percent by 2020;
- Implement the 2030 net-zero-energy building requirement;
- Meet sustainability requirements across 95 percent of all applicable contracts; and
- Develop and carry out an integrated strategic sustainability performance plan.

FEMP, in coordination with other Federal agencies, is in the process of assisting with the development of guidance for Federal fleet management. FEMP is also coordinating with other agencies to develop draft guidance to be issued by the Council on Environmental Quality (CEQ). This guidance will assist Federal agencies in meeting E.O. 13514 requirements. FEMP will help Federal agencies meet mandates of the new E.O. in the following areas:

- Accountability and Transparency;
- Strategic Sustainability Performance Planning;
- Greenhouse Gas Management;
- Sustainable Buildings and Communities;
- Water Efficiency;
- Electronic Products and Services;
- Fleet and Transportation Management; and
- Pollution Prevention and Waste Reduction.

FEMP offers technical assistance and training to Federal agencies to calculate, manage, and reduce their greenhouse gas (GHG) emissions in line with the E.O.'s mandates for 2020. In November 2009, FEMP launched a web site to address E.O. 13514 and greenhouse gas requirements and highlight related services. In FY2010, the Agency will debut a series of 90-minute training seminars focused on educating Federal employees on critical energy and sustainability topics, including the E.O. 13514.

POLICY COORDINATION

In FY2009 FEMP continued to monitor, report on, and coordinate the energy management of EISA 2007, which codified the energy intensity reduction goals of E.O. 13423.

FEMP implementation efforts under Section 432 of the Energy Independence and Security Act of 2007 (EISA 2007) included the release of Facility Energy Management Guidelines and Criteria for Energy and Water Evaluations in Covered Facilities in December 2008. Agency energy coordinators began the process of compiling lists of covered facilities and energy managers. These sections were provided to DOE in January 2009.

Based on FEMP's analysis of these preliminary submittals, energy use of agency-designated covered facilities was approximately 300 trillion Btu or 77 percent of Government facility energy use (surpassing the statutory target of 75 percent for each agency).

In May 2009, FEMP prepared interim guidance for agencies to use for reporting their initial findings of comprehensive evaluations in their EISA Section 432 covered facilities. FEMP will use the preliminary information provided by agencies to populate a beta-test version of the web-based tracking system scheduled to be tested and deployed in FY2010.

Preliminary analysis of the initial finding from the agencies indicates that almost 774 million square feet of facility space was evaluated since January 2007, approximately 45 percent of the covered facility total square footage.

FEMP is using an allotment of Recovery Act funding to implement Section 432 activities that were previously unfunded to develop, beta-test, and deploy the required web-based facility tracking system.

Decision Support Services

REPORTING ON ENERGY MANAGEMENT

During 2009, FEMP compiled and prepared the *Annual Report to Congress on Federal Government Energy Management* for FY2008. 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 12.4 percent in fiscal year 2008 relative to fiscal year 2003 for buildings subject to the goal. Based strictly on total site energy use per gross square foot, the Government cut its energy intensity by 9.4 percent. Using either accounting method, the Government surpassed the EPACT 2007 and E.O. 13423 goals of a 9 percent reduction.
- Federal agencies reported purchasing or producing 1,904 gigawatthours of goal-eligible renewable electric energy in FY2008, equivalent to 3.4 percent of the Federal Government's electricity use of 56,123 gigawatthours, surpassing the goal of not less than 3 percent for FY2008.

FEMP also published the *FY2008 Report on Federal Fleet Compliance with EPACT and E.O. 13423*. Key findings included:

- The equivalent of 178 percent of covered acquisitions of light duty vehicles were alternative fuel vehicles, surpassing the goal of 75 percent.
- Covered petroleum use was reduced by 4.54 percent from the 2005 baseline falling short of the 6 percent goal of 2008.
- Alternative fuel use increased 25.9 percent in 2008 from the prior year, surpassing the goal of a 10 percent increase.

FEMP also worked closely with the Office of Management and Budget (OMB) during January and July 2009 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 progress on OMB and agency-designated action items.

RECOGNITION

FEMP recognizes exemplary leadership of Federal employees and contractor support staff through annual energy management award programs. During FY2009 FEMP developed and implemented a new electronic awards nomination and evaluation online system that was accessible to Federal agency energy managers nationwide.

The Department of Energy Management Awards were held on August 12, 2009 in Providence, RI following the 12th annual GovEnergy Conference. Acting Deputy Assistant Secretary for Energy Efficiency and Renewable Energy, John Lushetzky, presented six Departmental Awards to small groups, and organizations for their outstanding efforts in saving an estimated \$21 million in energy expenses and 300 billion Btu. Mr. Lushetzky also presented the Department's Energy Champion award to Bill Sandusky of the Pacific Northwest National Laboratory.

On October 28, 2009, Associate Under Secretary for Energy Richard Moorer presented 32 individual, small group, and organization awards to Federal agency sites and individuals for collectively saving more than \$26 million in energy expenses and 558 billion Btu in FY2008. In addition, winners saved 585 million gallons of water and more than 212 billion Btu of energy through a combination of renewable energy generation and purchase.

On October 29, 2009, the White House honored seven teams from the Departments of Agriculture, Commerce, Defense, Interior, Treasury, and EPA for exemplary agency and base-wide team efforts to implement energy management goals. These teams were responsible for an estimated annual savings in excess of \$46 million and almost 2.5 trillion Btu, equivalent to the energy use of approximately 26,000 typical households. FEMP provided technical and logistical assistance for this Presidential awards ceremony.

To learn more details, visit www.femp.energy.gov/services/awards.html



INTRODUCTION OF NEW BRANDING AND FEMP LOGO

In FY 09, the DOE's Office of Energy Efficiency and Renewable Energy (EERE) launched a new identity format for all EERE communications products. FEMP incorporated this new look into all of its new communications products to provide a consistent branding within DOE/EERE. FEMP also updated its logo, which incorporated a new color scheme and design elements that reflected FEMP's growing work with Federal fleets.

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 energy awareness. The campaign promotes "Energy Champions"—employees making extraordinary efforts to help their agencies save energy and money. Accomplishments are highlighted through campaign posters sent to regional offices around the nation. In FY2009, 26 individuals were recognized, increasing the total number of Energy Champions to 495 since 1997. In addition, nine agencies developed Special Project posters featuring a showcase building or other important energy project for recognition during Earth Day and Energy Awareness Month, bringing the total to 81 projects since 2001.

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 2009

Decision Support Services



Department of Health and Human Services
National Cancer Institute
Frederick, Maryland

The HHS National Cancer Institute (NCI) campus in Frederick, MD utilized a Utility Energy Service Contract (UESC) to construct two state-of-the-art steam plants that deliver large-scale energy savings over the life of the 20-year contract. NCI receives steam plant performance information through remote metering and verification processes that provide real-time data. This information keeps NCI up-to-date on the plants' performance and provides user-friendly formats for outreach and education. NCI saved \$2.5 million in the first year of operation and will reduce CO₂ emissions by 14,365 tons annually. In 2009 this plant was featured as a *You Have the Power* success story.

Earth Day theme promoted "New Energy for America" in order to stimulate our economy, protect our environment, and increase energy independence. The 2009 Energy Awareness Month theme encouraged Americans to do their part and put all the pieces of energy efficiency together to create "A Sustainable Energy Future."

FEMP also designed and produced low-resolution artwork and animated energy awareness messages, available for download online. Agencies may obtain high-resolution artwork on the CD-ROM by requesting a *Power Kit: Energy Awareness Resources* from the EERE Information Center.

Web site

The FEMP web site underwent significant updates throughout FY2009. FEMP evaluated each section of the site for value to the visitor, content accuracy and timeliness, and ease of use, with the end goal to position the web site as a central resource for Federal energy

managers. Further enhancements include home page improvements, and the addition of a searchable publications library and RSS feeds.

The FEMP Communications Team played a key role in the following web additions:

- Laws & Regulations;
- Fleet Management;
- Data Center Energy Efficiency;
- Power Purchase Agreements.

During FY2009, the FEMP Web site recorded 447,107 total visits, with an average of 1,224 visits recorded each day. Visitors viewed more than 1.5 million Web site pages in all, averaging 4,187 page views each day. These numbers represent a 10 percent increase in overall traffic compared to FY2008.

Federal Energy Management Resources

FEMP provides assistance through project transaction services, applied technology services, and decisions support services. Visit FEMP's web site: www.femp.energy.gov, or call the EERE Information Center toll free at 1-877-EERE-INF (1-877-337-3463).



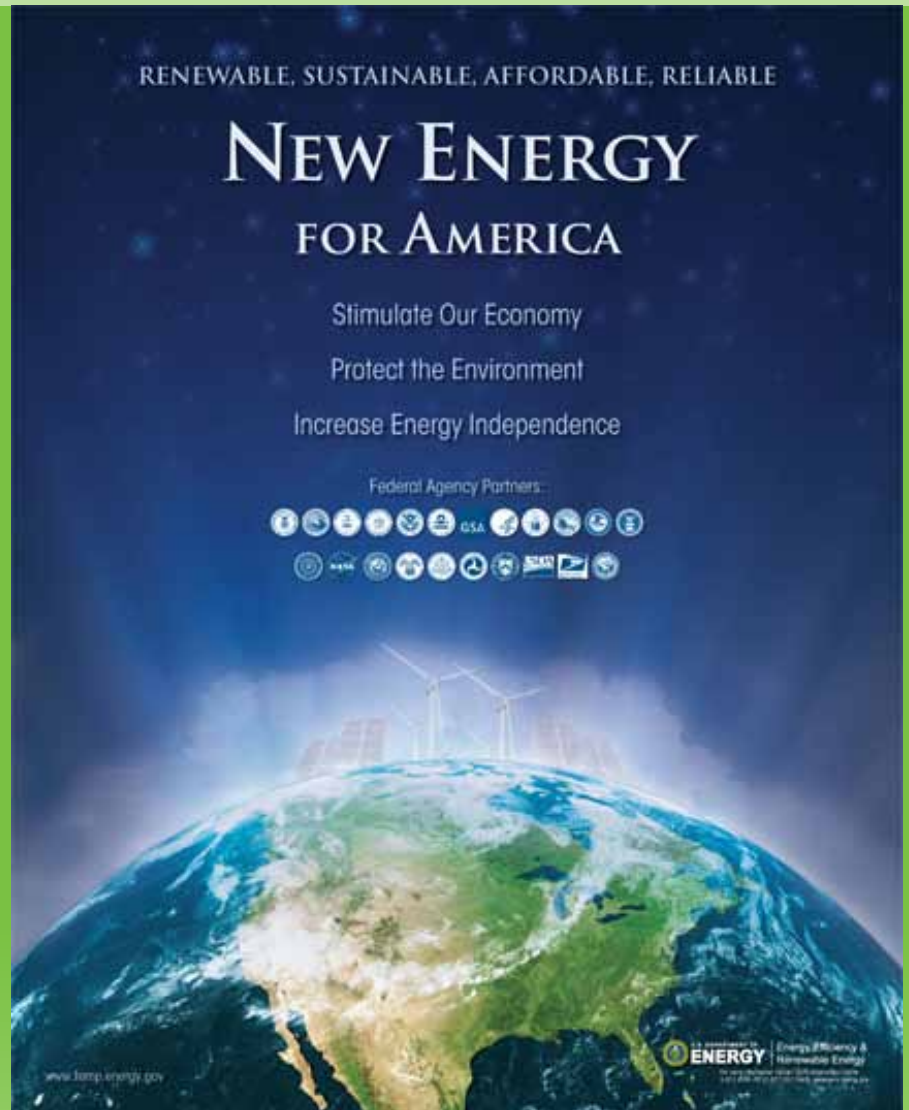
ENERGY EXPO: GovENERGY

GovEnergy, the nation's premier energy training workshop and tradeshow for Federal energy professionals, was held August 9-12, 2009 at the Rhode Island Convention Center in Providence, Rhode Island. Promoting the 2009 theme, *Charting a Course to Energy Independence*, GovEnergy was co-sponsored by the Department of Energy, the General Services Administration, the Department of Veterans Affairs, the Department of Defense, the Department of Homeland Security, and the Environmental Protection Agency.

This year's training addressed Federal energy management practices, statutory requirements, and executive policies for operating Federal facilities, and marked the largest registration in GovEnergy history, with 3,235 attendees, and 189 tradeshow exhibitors. GovEnergy featured over 100 sessions within 13 tracks. Attendees were able to obtain professional development and education credits and participate in optional technical tours. GovEnergy 2010 will be held August 15-18, at the Dallas Convention Center, in Dallas, Texas. Visit www.govenergy.gov for current information.

TRAINING

FEMP continued to sponsor a series of courses to train Federal employees on topics critical to energy management. In addition, FEMP co-sponsored a number of national energy and water management workshops and participated in other agency tradeshows focused on topics such as policy-related guidance, project financing, and energy efficient technology. The FEMP Training Locator on the FEMP Web site maintained a list of training opportunities offered by universities, professional associations, and industry organizations. FEMP's training programs were further marketed through the web site, FEMP Central mailing list, and word-of-mouth promotion by FEMP staff and training recipients. Courses were conducted as workshops, seminars, self-guided web courses, webinars/web-based teleconferencing, and symposia.



New Energy for America represents a change in attitude, a vibrant transformation of public and private cooperation, and a positive new direction to create a clean energy economy. It is the new energy of Federal workers who serve the nation each and every day, working to transform the ways we produce and use energy for the sake of our environment, our economy, and our security.

Recovery Act Projects



American Recovery and Reinvestment Act

FEMP received funding through the American Recovery and Reinvestment Act (ARRA) to enhance and accelerate the following FEMP services: enhanced technical assistance, communications and training, Energy Savings Performance Contracts (ESPC), Utility Energy Service Contracts (UESC), and Power Purchase Agreements (PPA) project support. ARRA funding also enabled the wider scope and increased pace of FEMP support to other Federal agencies as they make energy management and investment decisions using ARRA funding.

FEMP received more than 300 applications for support; 104 projects were selected and approved using ARRA funding, with a total value of \$12,053,099. Projects included technical assistance for renewable energy technology assessments, evaluation of generation technologies, development of strategic energy plans, energy audit training, and assistance with implementing smart grid, solar power, wind, and biomass energy technologies.

Below are examples of ARRA funded projects in which FEMP services were provided:

U.S. Pacific Command (PACOM) Energy Efficiency and Renewable Energy Analysis and Support

U. S. Department of Defense

PACOM Area of Responsibility (Hawaii, Alaska, Guam)

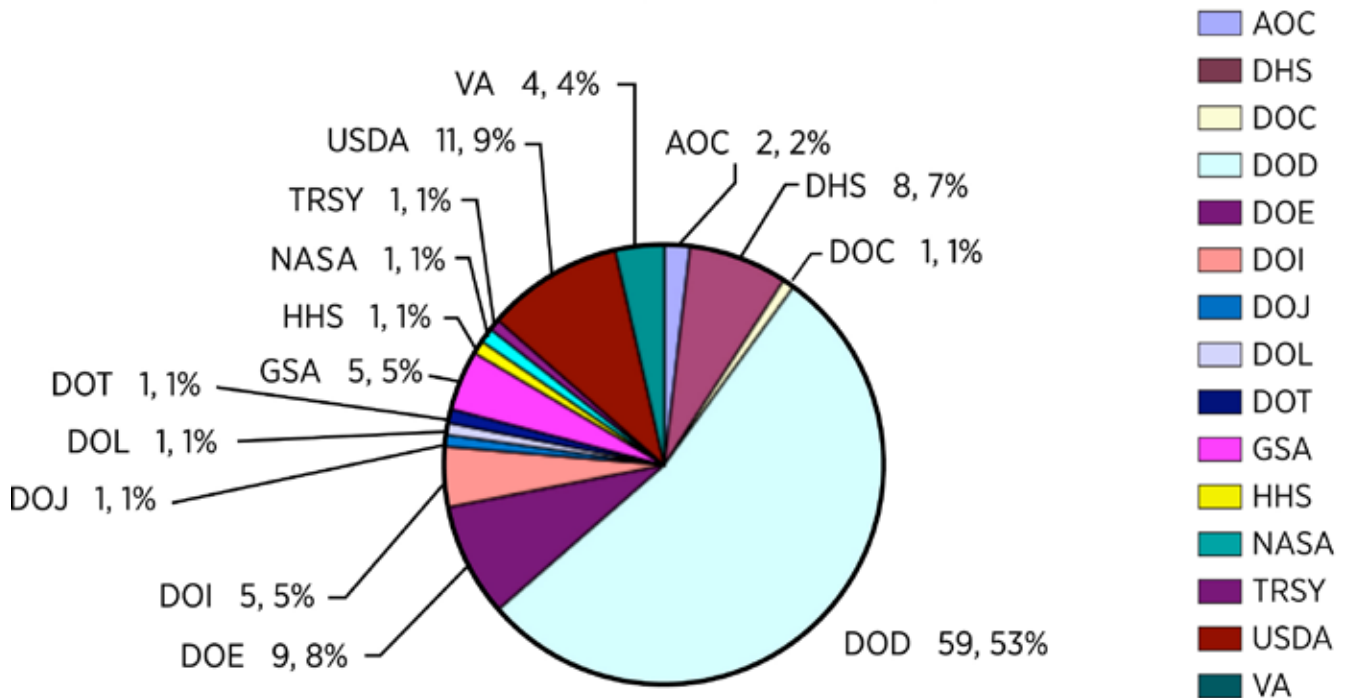
Funding: \$3,000,000

Jobs Created: 32

With funding support from FEMP, PACOM is working to aggressively address significant energy challenges at military installations within its area of responsibility. A multi-laboratory team was organized through FEMP to help U.S. PACOM meet its energy challenges. FEMP is assisting PACOM with the following tasks:

- Comprehensive building energy efficiency assessments;

SELECTED PROJECTS PER AGENCY



Recovery Act Projects

- Renewable Energy Optimization modeling;
- Data center energy efficiency assessments;
- New construction EERE optimization modeling;
- Industrial energy efficiency assessments;
- Energy Security and Micro Grid analysis;
- Net zero facility planning; and
- Energy manager training on building commissioning, efficiency assessments and data center efficiency.

FEMP is working with PACOM to implement an integrated systems-wide approach to energy savings. PACOM will serve as an example of this approach for entities with responsibility for multiple military installations.

In addition, PACOM is working with the state of Hawaii to accomplish the “DOE-Hawaii Clean Energy Initiative,” with a goal of using 70 percent clean energy by FY2030.



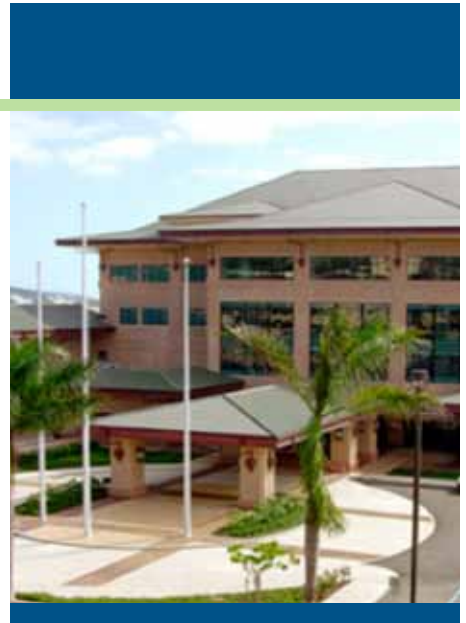
The Fort Bliss Implementation Plan of “Tiger Team” Recommendations

U. S. Army
Ft. Bliss, Texas
Funding: \$675,000
Jobs Created: 7.3

FEMP is assisting Fort Bliss with prioritizing the investment of appropriated funds to build renewable power plants for Army energy security, with the goal of generating enough energy to supply the Fort’s current expansion. This requires 20MW to 40MW of renewable generation capacity for 200 GWh/year, at an estimated investment of \$150M in FY2011

Once completed, the new installment will be the largest renewable energy generator at a Federal site, and create a precedent for the U.S. renewable energy industry. This is an opportunity for DOE to help the Army deploy a diverse mix of renewable technology on an unprecedented scale and will provide a strong impetus for the further expansion of the renewable energy industry.

FEMP, DOE Laboratory, and DOE contractor staff conducted a successful site visit with the staff of the Hawaii Department of Public Works to clarify tasks and develop the initial FY2010 action plan.



U. S. Department of Defense PACOM Area of Responsibility (Hawaii, Alaska, Guam)

FEMP is working with PACOM to implement an integrated systems wide approach to energy savings.

U. S. Army
Ft. Bliss, Texas

FEMP is assisting Fort Bliss with prioritizing the investment of appropriated funds to build renewable power plants for Army energy security, with the goal of generating enough energy to supply the Fort s current expansion.

Recovery Act Projects



This Cray XT4, at the National Energy Research Scientific Computing Center (NERSC) at Lawrence Berkeley National Laboratory, is among the largest machines on the list of Top 500 supercomputers in the world.

Data Center Acceleration Campaign

U.S. Department of Energy

DOE sites throughout the United States

Funding: \$420,000

Jobs Created: 4.5

FEMP will provide services to develop and implement a \$2.5 million strategic energy efficiency plan for the Department's information technology infrastructure, with emphasis on 41 data centers. FEMP projects a 30 percent savings using existing technologies.

Forrestal West Building Green Roof Design and Technical Assistance

U.S. Department of Energy

Forrestal Building, Washington DC

Funding: \$133,000

Jobs Created: 1.4

FEMP is providing DOE with technical assistance on plans to build a green and white roof on the Cafeteria and South buildings at DOE's Forrestal headquarters in Washington, DC. The scope of work was determined at a kickoff meeting in August 2009, and includes plans for green and white roof engineering designs, solar hot water heating for the cafeteria, energy savings and life cycle costs, and other technical and economic recommendations.

Beyond the Inventory - Next Steps for Greenhouse Gas Reductions in the Greater Yellowstone Ecosystem

U.S. Department of Agriculture

U.S. Department of the Interior

Funding: \$250,000

Jobs Created: 2.7

FEMP is assisting two Federal agencies responsible for managing the Greater Yellowstone Ecosystem with implementation of greenhouse gas reduction strategies following their recent completion greenhouse gas (GHG) emission inventories. FEMP will support the Agencies' efforts to identify site-specific GHG opportunities, build a collaborative

implementation plan, set a collective GHG reduction goal, and document the methodologies and processes involved.

FEMP's technical assistance includes:

- energy efficiency & renewable energy training/assessments for all 10 land management units and appropriate facilities and engineering staff;
- collective evaluation and compilation of all unit action plans and recommendations for identifying a single ecosystem-wide GHG reduction goal;
- creation of a collective implementation plan with strategic prioritization of projects, identifying opportunities for efficiencies, and partnerships with other entities;
- technical support to facilitate the implementation plan via procurement of technologies or building/renewable energy projects;
- development of a long term methodology for monitoring and tracking environmental and economic savings across the ecosystem from implementation of the action plans; and
- documentation of the methodologies and processes used to create action and implementation plans so that others in the Federal sector can replicate.

SUMMARY

A Sustainable Energy Future

WE'RE PUTTING
ALL THE PIECES
TOGETHER



Save energy.
Be part of
the solution to
climate change.

Ensuring a more economically prosperous and environmentally healthy Nation will require making sound investments in Federal energy efficiency and clean energy technologies. These investments in technological innovation and energy leadership will decrease our dependence on foreign oil, create new jobs, and reduce the greenhouse gas emissions that result in climate change.

Federal workers across this nation and around the world are making every effort to implement new and improved energy technologies and management strategies at their agencies. They are demonstrating American leadership and vision. And they are turning new sustainable strategies into cost-saving benefits for American taxpayers.

The Federal Government occupies nearly 500,000 buildings and facilities, operates more than 600,000 vehicles, employs more than 1.8 million civilians, and purchases more than \$500 billion each year in goods and services. These are large numbers, and with them come great responsibility. FEMP is leveraging partnerships, and taking bold steps to ensure that alternative financing of energy projects will maintain and improve these assets under Federal stewardship, as well as meet the new objectives of E.O. 13514, and the broad goals of the American Recovery and Reinvestment Act.

FEMP's customer service assistance to Federal agency partners is necessary to meet the requirements of rapid change. FEMP is playing an integral role in reducing greenhouse gas emissions, increasing energy efficiency, conserving water, reducing waste, and advancing the market for environmentally sound products and technologies.

The Federal Government has always confronted new challenges that have tested the determination and ability of its workforce, and it has consistently found a better way to get the job done. Now, more than ever, a secure and sustainable energy economy demands we that we uphold this precedent.



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.

YEAR in REVIEW 2009



U.S. DEPARTMENT OF
ENERGY

Energy Efficiency &
Renewable Energy

FEMP
Federal Energy Management Program

For more information contact:
EERE Information Center
1 877 EERE INF (1 877 337 3463)
www.eere.energy.gov

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