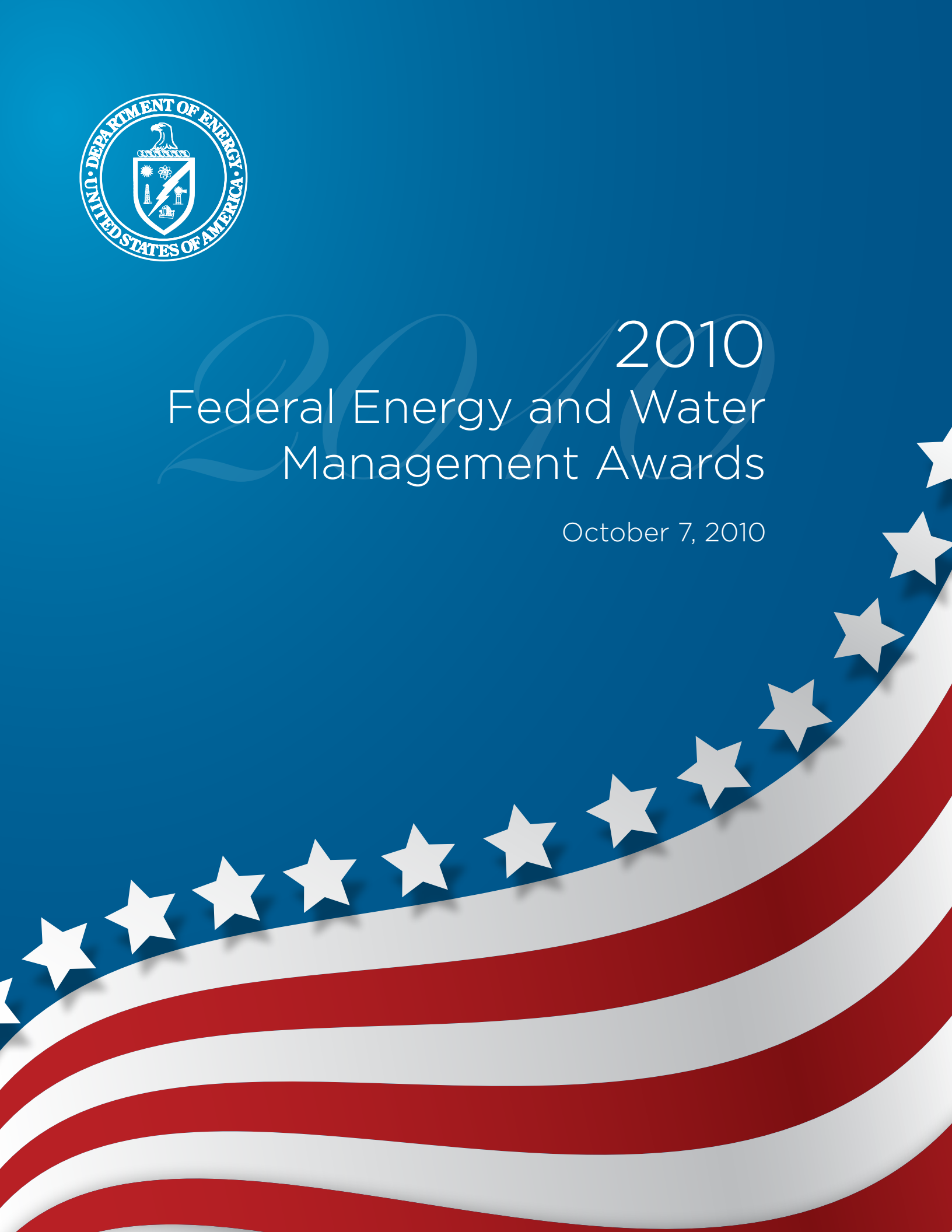
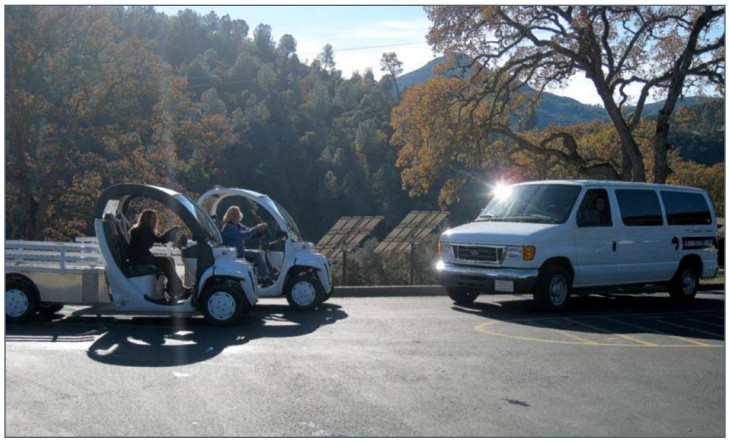


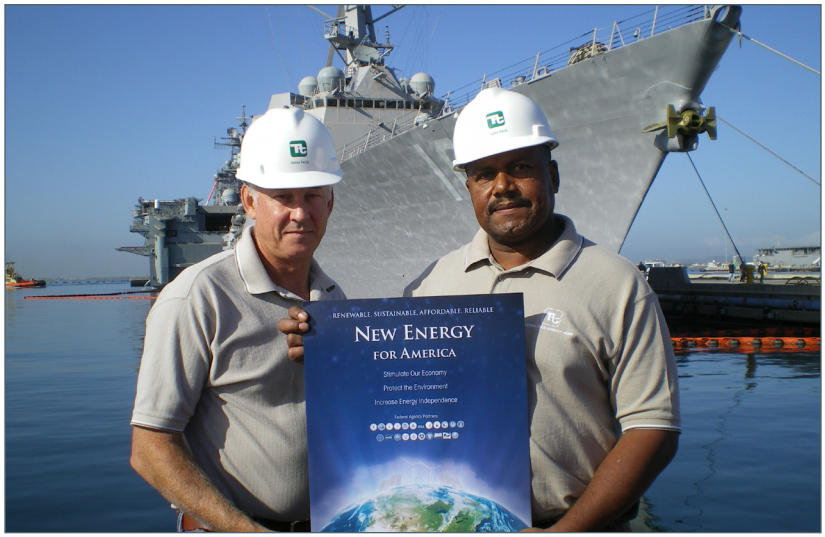
# 2010 Federal Energy and Water Management Awards

October 7, 2010



Bureau of Reclamation, Lake Berryessa Recreation Resources Branch

U.S. General Services Administration, John W. McCormack Federal Building




Charlie Crossan and Stan Walker, Navy Region Southwest Shipboard Shore Energy Management

U.S. Marine Corps, MCAGCC Twentynine Palms

Department of the Navy, Commander Fleet Activities Yokosuka, Japan

U.S. Air Force, Hickam Air Force Base

U.S. Fish and Wildlife Service, Inland Norwest National Wildlife Refuge Complex Headquarters


U.S. Department of Defense, Defense Commissary Agency

## Acknowledgments

The Department of Energy's Federal Energy Management Program thanks the individuals and organizations below for their support and assistance in presenting the 2010 Federal Energy and Water Management Awards.

Secretary of Energy . . . . . The Honorable Steven Chu
Assistant Secretary of Energy Efficiency and Renewable Energy . . . . . The Honorable Cathy Zoi
Deputy Assistant Secretary for Energy Efficiency . . . . . Kathleen B. Hogan
FEMP Program Manager . . . . . Richard G. Kidd IV

### Evaluation Panel

Dan Amon . . . . . U.S. Environmental Protection Agency
Deb Beattie . . . . . National Renewable Energy Laboratory
Patricia Clark . . . . . U.S. Department of Labor
Andy Crigler . . . . . U.S. Department of Defense
Marguerite Downey . . . . . U.S. Department of Transportation
Douglas Eisemann . . . . . SENTECH, Inc., *now a part of SRA International*
Paul Hahn . . . . . U.S. Department of Defense/Defense Logistics Agency
Mary Heying . . . . . U.S. Department of the Interior
Kristan Higgins . . . . . U.S. Department of Veterans Affairs
Douglas Hinrichs . . . . . SENTECH, Inc., *now a part of SRA International*
Don Juhasz . . . . . U.S. Department of Defense/Defense Logistics Agency
Andrea Kincaid . . . . . U.S. Department of Defense/Defense Logistics Agency
John Lattanzio . . . . . SENTECH, Inc., *now a part of SRA International*
Regina Larrabee . . . . . U.S. Department of Veterans Affairs
Kyle Patterson . . . . . SENTECH, Inc., *now a part of SRA International*
Paul Richardson . . . . . U.S. Department of Defense/Army
Robert Scinta . . . . . U.S. Department of Commerce
Beth Shearer . . . . . Beth Shearer and Associates, Inc.
John Simpson . . . . . U.S. General Services Administration
Rhonda Stewart . . . . . U.S. Department of Defense/Navy

## Foreword

The President of the United States has challenged Federal Government agencies to lead by example in their use of clean energy and energy efficiency. The Department of Energy's Federal Energy Management Program (FEMP) partners with agencies to achieve these goals as part of its mission 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.

The Department of Energy, with the Federal Interagency Energy Policy Committee, established the annual Federal Energy and Water Management Awards in 1981 to recognize Federal employees for outstanding efforts and an ongoing commitment to reach our energy, water, and fleet management goals. These Awards were later called for by the Energy Policy Act of 2005.

FEMP encourages agencies to take a sustainable approach to Federal energy management to reduce greenhouse gas emissions, as directed by Executive Order 13514. We present the 2010 Awards to recognize Federal employees and contractor support staffs that successfully developed and implemented cost-effective, transferable projects and programs that embody the principles of sustainable design and showcase innovation. The 2010 winners of the Federal Energy and Water Management Awards are not only helping their agencies meet mandated reduction goals, but are also helping the nation decrease our dependence on oil, strengthen our economy, and reduce the levels of dangerous pollutants that cause climate change.

FEMP is proud to acknowledge the 31 winners of the 2010 Awards who, through hard work, persistence, and vision, in one year contributed to savings of 1.7 trillion Btu of electricity, 3.2 billion gallons of water, and almost $42 million in costs. The projects additionally saved more than 38 billion Btu of energy through a combination of renewable energy generation and purchases, saved 3 million gallons of fuel, and reduced greenhouse gas emissions by the equivalent of almost 190,000 metric tons of carbon dioxide.

Please read about these outstanding accomplishments 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. Congratulations and thank you to each deserving winner.

## Table of Contents



*Multiple Category projects may include Energy Efficiency, Water Efficiency, Renewable Energy, and/or Fleet Management

## Program Manager's Award to a Small Group

Richard Bartow
David Chilson
Gregg Jones
Richard Pfahler
Anthony Reando
*U.S. Department of Transportation*
*Federal Aviation Administration*
Anchorage, Alaska

Through the collaborative work of two air traffic control facilities in Anchorage Alaska, in FY 2009 the Federal Aviation Administration developed and tested new air traffic control procedures that greatly improve aircraft profile descent efficiency, resulting in enormous jet fuel savings. The procedures allow an aircraft to "coast" along the optimum descent profile with their engines at idle, keeping fuel consumption and emissions at their lowest. New computer technology aboard the aircraft calculates the most efficient location to start the descent. Usual procedures require air traffic controllers to give continuous instructions, resulting in "stepping down" the aircraft through several altitudes and forcing it to level out before the next lower altitude is assigned. Each step down requires power that increases fuel consumption and therefore greenhouse gas emissions. The initial tests in FY 2009 produced savings of 570,000 gallons of jet fuel and eliminated the more than 5,200 metric tons of carbon dioxide. Further, the procedures resulted in reduced noise and increased safety of the National Airspace System.

## Multiple Category—Awards to Organizations

U.S. Air Force
*Minot Air Force Base,*
North Dakota

For decades, Minot Air Force Base distributed hot water from an aging central heating plant (CHP), operating as the primary heating system for more than 90 facilities. In FY 2009 the Base replaced the plant with 400 tons of ground source heat pumps (GSHPs) for select large facilities and facility-specific high efficiency boilers for the remaining facilities. System efficiency is enhanced with the use of energy recovery units that use warm exhausted air to heat incoming cold air, as well as water-to-air split system heat pumps. The heat plant decentralization saved 114 billion Btu of energy and 16 million gallons of water in FY 2009, a reduction of 22 percent and 13 percent respectively from FY 2006, saving $2.6 million in energy and water costs and more than $48,000 annually in maintenance and repair. The new system also reduced total greenhouse gas emissions by more than 4,000 metric tons of carbon dioxide—a 19 percent reduction. Further, decentralized temperature controls have greatly improved occupant comfort and satisfaction.

## U.S. Department of Energy

*Oak Ridge National Laboratory*
Oak Ridge, Tennessee

Oak Ridge National Laboratory (ORNL) established its multi-disciplinary sustainable campus initiative to provide a support structure for its sustainable technology efforts and a comprehensive sustainable vision of ORNL operations over the next 10 years. In FY 2009, the team benchmarked ORNL sustainable practices and metrics and developed a 2018 roadmap for the campus. Documented results include ORNL's one million square feet of energy efficient, Leadership in Energy and Environmental Design (LEED)-certified campus space, 60 megawatt-hours of renewable energy, including three solar collectors, and a net-zero-energy building goal with one of four buildings transformed. ORNL was able to increase its square footage by 35 percent with only a 6 percent increase in energy consumption compared to FY 2000. Its growing alternative vehicle fleet used 84,000 gallons of bio-based fuels in FY 2009; water conservation projects saved 63 million gallons of water and $104,700; and 30 additional sustainability projects saved 17 million kilograms of waste, resulting in costs savings of more than $8 million.

## U.S. Department of the Interior

*Bureau of Reclamation*
*Mid-Pacific Region*
*Central California Area Office*
*Lake Berryessa*
*Recreation Resources Branch*
Napa, California

As a public recreation site with high visibility, the Lake Berryessa Recreation Resources Branch staff has worked to exemplify sustainable principles using a whole facility approach that extends to employees and visitors. Measures include fleet management with electric vehicles, a vanpool, and onsite housing; energy efficient lighting and controls; ENERGY STAR heat pumps; daylighting, solar water heating, and photovoltaics; and water conservation through wash bay recycling, low-flow fixtures, and native landscaping. In FY 2009 these projects saved almost 41 million Btu, 71,000 gallons of water, and more than 9,900 gallons of fuel, and avoided 114 metric tons of carbon dioxide emissions. The site uses recycled plastic for decking and benches, and operates a source separation recycling program as well as a year-round education program for school children and the general public. Though staffing doubled in FY 2009 due to major capital improvements made possible with American Recovery and Reinvestment Act funding, energy and water use remained steady thanks to the site's aggressive conservation program.

U.S. Marine Corps
*Logistics Base Barstow*
Barstow, California

In FY 2009 Marine Corps Logistics Base Barstow, in partnership with Southern California Edison, used a utility energy service contract (UESC) to implement renewable energy and energy efficiency measures. The primary project under the UESC was the installation of the Marine Corps' first large scale wind turbine. The 1.5 megawatt wind turbine generated more than 3,600 megawatt hours of electrical energy in FY 2009, representing about 11.6 percent of base electricity consumption. The two year time period from groundbreaking to commercial use was the most aggressive large scale wind turbine installation schedule known in the industry. Additional projects implemented through the UESC included solar lighting, air conditioning efficiency improvements, and vending machine controls. Together, these projects will save about 15 billion Btu and almost $380,000 annually. Barstow demolished 300 housing units and constructed 74 new units with high-efficiency plumbing fixtures, which also led to the discovery and elimination of major leaks. These projects reduced water usage by almost 39 percent from FY 2008, saving more than 81 million gallons of water.

Department of the Navy
*Commander Fleet Activities Yokosuka*
Japan

In FY 2009 Commander Fleet Activities Yokosuka (CFAY) installed a $112 million, 39-megawatt cogeneration power plant using the largest energy savings performance contract in the Federal Government at the time of award. The plant supplies power equal to the load of 26,000 homes and avoids 62,000 metric tons of carbon dioxide emissions annually. As the first power plant of this scale built at an overseas Federal installation, the project overcame unique engineering and technical challenges, including the need for 30-foot pilings to be driven into the ground for stability. The project included major upgrades to the steam generation and distribution systems and a new natural gas line. Other FY 2009 efforts included lighting retrofits and installation of parking lot lighting timers, low flow plumbing fixtures, and efficient doors and windows. These projects saved 587 billion Btu in FY 2009, resulting in almost 30 percent reduction in energy intensity from FY 2008, as well as 745,000 gallons of water and $16.8 million in energy costs. The cogeneration plan also allowed CFAY to decommission an existing steam plant, thus saving millions of gallons of fuel oil each year.

## Multiple Category—Awards to Small Groups

Dale Aubin
Tony Leger
Frank Drauszewski
Teri Neyhart
Graham Taylor
*U.S. Department of the Interior*
*U.S. Fish and Wildlife Service*
*Parker River National Wildlife Refuge*
Newburyport, Massachusetts

The Parker River Visitor Center and Administrative Headquarters was originally constructed in 2003 as a model of sustainable design, with passive solar techniques, super-insulation of the building envelope, high-efficiency lighting, and a geothermal open-loop ground-source heat pump reducing energy use by 41 percent over a traditional office building. Although the site was restored to natural habitats, highly corrosive groundwater caused failure of the geothermal system. The Service triumphed over this setback by installing a solar photovoltaic (PV) system that generates about 48 megawatt hours per year and supplies 42 percent of the Center's electrical needs. The Center also converted from fuel oil to a natural gas-fired ENERGY STAR® heating, ventilation, and air conditioning system. These measures saved more than 115 million Btu and 31 metric tons of greenhouse gases while reducing energy costs by more than one third in FY 2009. Further reductions in energy use are anticipated with a full year of operation of the PV system in FY 2010. The more than 255,000 annual visitors can view the system's performance on the Center's live interactive display.

Jim Burby
Forrest Cameron
Lisa Langelier
Karl Lautzenheiser
*U.S. Department of the Interior*
*U.S. Fish and Wildlife Service*
*Inland Northwest National Wildlife Refuge*
Cheney, Washington

The Leadership in Energy and Environmental Design (LEED) Silver-rated headquarters building for the Inland Northwest National Wildlife Complex incorporates numerous energy savings strategies including super-insulation, a cool roof, daylighting, energy efficient LED lighting with occupancy sensors, triple-paned low-emissivity windows, optimal building orientation, and local stone and concrete to enhance thermal mass and help maintain comfortable temperatures. The building uses a 14.35-ton geothermal heat pump with an overhead electric forced air system for heating and cooling, a 4.9 kilowatt grid-tied solar photovoltaic array for electricity, and a flat-plate roof-mounted solar collector system for hot water. Landscaping with native plant species, low-flow plumbing fixtures, and bioswales for parking lot runoff conserve water. Most building materials have a high recycled content and more than half of the construction waste was recycled. The efficient design reduces energy use by about 32 percent over an average building, and the 15.5 megawatt-hours of renewable power save at least 10 metric tons of greenhouse gas emissions annually.

John Buckley
John Hawkes
Ivan Lopez
Roman Piaskoski
Michael Santos
*U.S. General Services Administration*
*New England Region*
Boston, Massachusetts

Originally built in 1933, the General Services Administration recently renovated the John W. McCormack Federal Building to attain a Leadership in Energy and Environmental Design (LEED) Gold rating while also preserving the building's historic character. The design reused 99 percent of the historical structure, including oak parquet flooring and terrazzo flooring with marble inlay; original doors refurbished with forest stewardship council-certified wood; and marble bathroom partitions for pavers on the green roof. Energy efficient strategies include daylighting, high efficiency windows with enhanced sun shades, occupancy sensors, high efficiency chillers, and enhanced commissioning. The building is projected to use 32 percent less water than a similar office building through high efficiency plumbing fixtures, a solar water pump, and cisterns that capture storm water runoff for irrigation of the green roof. The building also uses 100 percent green power for the Environmental Protection Agency office space (54 percent of the building) from biomass, landfill gas, and wind to offset electricity consumption.

Tom Caffee
Gary Passmore
John Payne
Zachary Scheel
Don Truscott
*Department of the Navy*
*Naval Facilities Engineering Command*
*Naval Station Everett*
Everett, Washington

The Bachelor Enlisted Quarters at Naval Station Everett (NSE), one of the first Navy buildings to achieve Leadership in Energy and Environmental Design (LEED) Gold designation, opened for occupancy in FY 2009. Strategies such as favorable siting, use of recycled materials, and advanced landscaping techniques all minimize the building's environmental impact. Energy saving technologies include direct digital controls, preferential free cooling with outside air, exhaust air waste heat recovery, and enhanced commissioning. Low-flow plumbing fixtures, xeriscaping, and advanced irrigations systems will reduce water use by 50 percent over a standard building. More than 2 million kilowatt-hours, or 70 percent of the building's electricity for the next two years, will come from renewable energy sources, resulting in avoided carbon dioxide emissions of almost 728 metric tons annually. By the end of FY 2009 NSE already converted 90 percent of its transportation fleet to alternative fuels and saved more than 11,700 gallons of fuel. The facility is projected to use 28 percent less energy than a standard building, and will save 2.5 billion Btu in electricity and natural gas consumption, 1.3 million gallons of water, and $43,000 in utility costs annually.

Jeffrey Amick
David Shaner
Michelle Steiner
Ronald Viggiani
David Wilcox
*Department of the Navy*
USS IWO JIMA

USS IWO JIMA deployed a set of strategies in FY 2009 designed to optimize energy efficiency and reduce fuel consumption. One of the most significant measures undertaken was the proper maintenance of boundaries exposed to outside weather; all doors and hatches are clearly marked, monitored, and properly maintained. Ship Energy Conservation Assistance Training software is used to generate fuel consumption curves, resulting in continuous monitoring to ensure efficient operation of the ship engineering plans. During in-port periods, the ship minimized the time required to transition the engineering plant between underway and cold iron status by strategically shifting to the ship's service/emergency diesel generators. This saves approximately 50 percent of fuel over operation of the propulsion plant. These measures reduced fuel consumption by more than 2.3 million gallons of fuel and 308 billion Btu from FY 2008, saving more than $5 million in costs. These savings also resulted in reduction of greenhouse gases equivalent to about 22,600 metric tons of carbon dioxide in FY 2009.

## Programs that Implement Efficient Energy, Water, and/or Fleet Management—Awards to Organizations

U.S. Department of Defense
*Army and Air Force Exchange Service*
Dallas, Texas

The Army and Air Force Exchange Service (AAFES) established a corporate sustainability program that incorporates sustainable actions into normal business practices across all aspects of the AAFES organization. Goals are to reduce energy, water, and fuel consumption; reduce its carbon footprint; and increase the procurement and marketing of environmentally-friendly products. Every AAFES directorate is involved and sets measurable goals as part of their annual accomplishments. AAFES implemented numerous projects at their own facilities in FY 2009 including installation of energy-efficient lighting, ENERGY STAR equipment, and water-efficient plumbing fixtures, while also significantly increasing sales and marketing of sustainable products. These efforts resulted in reductions of more than 70 billion Btu of electricity and 24,000 gallons of water, equaling $2.7 million in costs. Although there was an increase in fleet miles traveled, fuel efficiency improved by 2 percent, reducing fleet fuel costs by $3.7 million. AAFES reduced greenhouse gas emissions by the equivalent of more than 12,500 metric tons of carbon dioxide.

## U.S. Department of Defense

*Defense Commissary Agency*
Fort Lee, Virginia

In 2003 the Defense Commissary Agency (DeCA) developed a centralized, integrated environmental management system (EMS) to improve the processes and actions of its commissaries and facilities worldwide, as well as its associates, vendors, and contractors. The EMS utilizes a holistic approach to plan and manage nine significant sustainability aspects including energy and water efficiency. DeCA uses an Internet-based data network to monitor energy and water use at more than 250 facilities, which allows quick identification and response to billing anomalies and permits strategic planning of capital improvements. In FY 2009, the EMS was certified as conformant with ISO 14001—one of the few in the Federal Government to achieve this certification. As a result of its program, in FY 2009 DeCA achieved energy savings of 90 billion Btu and water savings of 43 million gallons, avoiding $2.7 million in utility costs and more than 18,000 metric tons of greenhouse gas emissions. A new strategic energy conservation program and a Green Store Certification program developed in FY 2009 also will contribute to DeCA's future success in achieving its sustainable management goals.

## U.S. Department of Energy

*Argonne National Laboratory*
*Argonne Site Office*
Argonne, Illinois

Argonne implemented an in-house energy savings reinvestment program in FY 2009 to complement its aggressive energy savings performance contract program (ESPC). The new program completes energy and water saving projects using internal engineers and technicians or small contracts to achieve quick savings. Projects are identified by Argonne's multi-disciplined engineering team and the mechanics who maintain the campus buildings and utility plants. Savings are measured, verified, and reported to Argonne's budget office. The budget office then provides recurring funding equal to the amount of utility cost savings to reinvest in additional projects. Argonne continues to use ESPCs for efforts that require large amounts of capital funding and outside expertise, but the reinvestment program demonstrates that significant savings can be achieved by tapping the expertise of Argonne's own personnel. In addition to a $3.9 million ESPC project completed in FY 2009, 14 in-house projects resulted in savings of more than 31 billion Btu and 4.4 million gallons of potable water, and avoided 5,000 metric tons of carbon dioxide. Thirteen more projects are underway in FY 2010.

## U.S. Environmental Protection Agency

*(Agency-wide)*
Washington, DC

The U.S. Environmental Protection Agency's (EPA) comprehensive water conservation program enabled the Agency to achieve impressive water use reductions in FY 2009 of 4.5 million gallons, a 3.9 percent reduction in water intensity from FY 2008 and a 10.8 percent reduction from the FY 2007 baseline. EPA takes an all-hands approach to ensure that it meets mandated water reduction goals at the Agency level by integrating its water conservation strategy into long-term planning, institutionalizing sound water management practices, and working from the bottom up to set facility-specific water reduction goals annually. Targets were reached in FY 2009 through a variety of water reduction projects including an Agency-wide faucet retrofit program; toilet and urinal upgrades; air handler condensate recovery projects; single-pass cooling elimination; and irrigation elimination and optimization. These efforts were coordinated through communication and information transfer including Web pages that promote best practices, Agency-wide usage reporting, and a cycle of on-site assessments and recommendations. EPA's program saved more than $44,000 in water costs in FY 2009.

## U.S. Marine Corps

*Marine Air Ground Task Force Training Command/Marine Corps Air Ground Combat Center*
Twentynine Palms, California

In FY 2009 Marine Corps Air Ground Combat Center (MCAGCC) Twentynine Palms broadened its overall utility and energy management programs, investing $16.1 million in new photovoltaic (PV) applications and continued energy efficiency improvements. Energy efficiency efforts included 14 energy management control system and chilled water conservation projects, 10 interior and exterior lighting upgrade projects, and complete utility metering. These efforts saved 12.8 billion Btu in FY 2009 and reduced energy intensity more than 15 percent from the FY 2003 baseline. Two PV sunshade projects provide annual generation of 610 million Btu, with exploration of wind and geothermal resources underway. Four water conservation projects replaced 80,000 square feet of grass with rockscape, saving almost 2.2 million gallons of water each year. Water consumption was reduced more than 7 percent from the FY 2007 baseline. MCAGCC also continued its Building Energy Monitor program, assigning individuals from every Directorate and tenant command to inspect their respective buildings, report problems that create inefficient operations, and educate building tenants on energy awareness.

## Department of the Navy
*Naval Base San Diego*
San Diego, California

Naval Base San Diego (NBSD) is homeport for 56 ships, the greatest concentration of surface ships on the west coast, and covers 467 buildings totaling about 7.2 million square feet. In FY 2009 NBSD developed its base Energy & Water Reduction Plan to meet mandated energy goals. Sustainability is institutionalized through the resource efficiency manager (REM), who works directly with the public works facility managers, contract specialists, base planners, and contractors on projects. NBSD has transferred its shore REM program onto ships at the pier, employing many tools and strategies that make its shore program a success. Several innovative technologies currently being implemented at other Navy facilities were first demonstrated at NBSD, including LED street lighting, "smart landscaping," state-of-the-art central irrigation controls, and oil-free chiller plant compressors with internal variable frequency drives. In FY 2009 NBSD saved more than 15 billion Btu and 57 million gallons of water for a combined savings of $1.5 million in costs. NBSD reduced its energy intensity by 18.4 percent from FY 2003 baseline and its water intensity by 30.1 percent from the FY 2007 baseline.

## Department of the Navy
*Navy Region Southwest*
San Diego, California

The Navy Region Southwest (NRSW) energy and water efficiency program is at the forefront of the Navy's energy program. NRSW has implemented a comprehensive program across its 10 installations, including investing $87.5 million in cost savings measures in FY 2009, training dedicated energy management teams, and instituting integrated outreach programs. NRSW has led the Navy in expanding metering and effectively using meter data to identify big energy targets of opportunity. In FY 2009 NRSW saved $3.9 million and 33 billion Btu through low- and no-cost measures. The Region also took advantage of its Southern California location, replacing 21 billion Btu of fossil fuel consumption with a combination of solar, wind, and geothermal energy, generating 4,300 megawatt-hours of renewable energy. These and other projects collectively reduced energy consumption by more than 223 billion Btu and 662 million gallons of water in FY 2009. This represents approximately one-tenth of the energy and 31 percent of the water consumed by the Region. The Region decreased its energy intensity by 17.7 percent from FY 2003 baseline and water intensity by 27 percent from the FY 2007 baseline.

## Programs that Implement Efficient Energy, Water, and/or Fleet Management—Awards to Small Groups

Edward Brice
Michael Maier
Nick Stecky
Thomas Struble
Richard Wood
*Department of the Army*
Picatinny Arsenal, New Jersey

Picatinny Arsenal modified a previous energy performance contract project for boiler plant decentralization to leverage excess savings into additional energy improvements. This approach saved two years in delivery time over developing a new project, with shorter payback and reduced financing costs. The team developed a comprehensive plan to address energy, water, safety, and environmental concerns. The effort focused on increasing energy performance and reducing water consumption of two large boiler plants, including installing energy efficient equipment and heat recovery systems; switching fuel from oil and propane to natural gas; rebuilding the non-potable water system to replace potable water in non-potable applications; and improving heating, ventilation, and air conditioning including energy monitoring and control systems. The project saved more than 110 billion Btu, 19 million gallons of water, and more than $889,000 in costs in FY 2009. Greenhouse gases were reduced by more than 6,100 metric tons of carbon dioxide. Other benefits include reduced chemical treatment, avoided expansion of the potable water plant, and reduced sewage flow.

Charlie Crossan
Jon Duke
Bernie Lindsey
Stanley Walker
CAPT Ricky Williamson
*Department of the Navy*
*Navy Region Southwest*
San Diego, California

In FY 2009 the Navy Region Southwest (NRSW) implemented a first-of-its-kind Shipboard Shore Energy Management (SSEM) program aboard 50 Navy ships in the San Diego fleet concentration area. The program puts shipboard regional energy managers in place to help ships reduce utility costs and consumption of cold ironing activities such as the use of electricity, steam, water, and compressed air delivered to ships in port while the ships' engineering plants are secured. Prior to the start of the program, San Diego cold iron costs were more than $60 million annually. Since FY 2007, NRSW has successfully applied best energy management practices (BEMPs) to cut shore energy use, and ships have agreed to adopt and implement all applicable BEMPs as their standard pier-side operating procedure while in secure ports. The shipboard electricity savings achieved in FY 2009 saved more than 56 billion Btu and more than $2 million at no capital cost and a contract cost of about $400,000. The program reduced greenhouse gases by the equivalent of about 6,000 metric tons of carbon dioxide and reduced average electrical demand on the California power grid by about 1.9 megawatts.

## Programs that Implement Efficient Energy, Water, and/or Fleet Management—Award to an Individual

Paul Morgan
*U.S. Department of Veterans Affairs*
*VA Southeast Energy Manager*
*VISN 7*
Alabama, Georgia, and South Carolina

As Southeastern Network Energy Manager, Paul Morgan provided leadership, tracking, and follow-up for all aspects of energy and water efficiency, renewable energy, and fleet management programs for Veterans Integrated Service Network 7 (VISN 7). He took a unique approach, utilizing the performance improvement cycle and industrial engineering tools to provide for continuous quality improvement to achieve more effective results. Mr. Morgan designed, drafted, and published a comprehensive VISN 7 Energy Management Policy, one of the first within the Department. His Network Reduction Plan uses tools such as energy audits, assessments, statistical observations, and emerging technologies to propose viable projects that place the program on a path to success in meeting Federally mandated goals. He also developed the VISN 7 Energy Dashboard, which allows tracking of key data to evaluate monthly program progress. As a result, in FY 2009 VISN 7 reduced energy consumption by more than 3 billion Btu, saving almost $86,000. VISN 7 also attained Green Globe Certifications for three medical centers equaling 31 percent of its gross square footage, and has already exceeded the 2015 sustainability requirement of Executive Order 13514 of 15 percent.

## Renewable Energy—Awards to Small Groups

Randy Grant
Thomas Quinn
Roger Storman
*U.S. Air Force*
Hickam Air Force Base, Hawaii

In FY 2009 Hickam Air Force Base, Hawaii installed a 146 kilowatt photovoltaic (PV) array consisting of 810 panels, co-located with a hydrogen refueling station. The array was constructed to support the creation of hydrogen for alternative fueling of vehicles being field tested by the Army and Air Force. The station is primary powered by the solar array, with wind mills currently being installed as the second phase. The goal is to be able to produce hydrogen under various climate conditions. For the first 10 months after installation, the array produced 203 megawatt-hours of electricity, prevented the release of 698 metric tons of carbon dioxide, and saved Hickam $35,000 in utility costs, with no cost for the hydrogen. The fleet of hydrogen fuel cell hybrid vehicles further reduces greenhouse gas emissions. Due to the project's success, Hickam has developed plans for two additional ground-mounted and roof-top solar projects. Furthermore, use of solar power to facilitate hydrogen production will allow the Air Force to develop hydrogen production systems in many environments and conditions, including hostile wartime locations.

Rick Eschenbach
Ted Fowles
Pamela Komer
Jesse Maestas
John Slaughter
*U.S. Department of Homeland Security*
*U.S. Coast Guard*
*Coast Guard Yard*
Baltimore, Maryland

The U.S. Coast Guard and City of Baltimore signed a Memorandum of Understanding in 2006 and a contract in 2007 for the Coast Guard Yard to utilize methane gas from the nearby, city-owned Quarantine Road Sanitary Landfill. Key terms of the agreements were the building of the landfill gas collection system for the City of Baltimore at no cost to the City and a fixed cost to the Coast Guard for landfill gas over term of contract. A $41 million 15-year energy savings performance contract (ESPC) with AMERESCO was signed in 2007 for initial construction and 15 years of follow-on operations and maintenance of a co-generation plant. It is the largest ESPC as well as the largest renewable energy project in Coast Guard history, and will meet the renewable energy requirements of the Energy Policy Act of 2005 for the entire Department of Homeland Security through 2012. The project will save more than $2 million in annual utility costs, produce an output of 4 megawatts of landfill gas, and reduce greenhouse gases by the equivalent of more than 1,600 metric tons of carbon dioxide.

## Water Efficiency—Awards to Small Groups

TSgt Juan Aguilar-Munoz
MSgt Kevin Avila
Izumi Miyagi
Jon Muckey
Yasuko Sakihama
*U.S. Air Force*
Kadena Air Base, Japan

Water is one of the most valuable natural resources on Okinawa, Japan because the island is totally dependent upon rainfall for fresh water. Kadena Air Base uses a whole-building and integrated design approach for the repair and modernization of existing base facilities. The plan includes installing ENERGY STAR clothes washers, installing efficient plumbing fixtures in dormitory rooms, implementing an aggressive water leak detection and repair program, and establishing a robust water conservation awareness program. In FY 2009, Kadena replaced 302 standard issue clothes washers with energy and water-efficient models and installed more than 1,700 efficient aerators and 1,350 shower heads and water closets in 17 dormitories. Together these projects reduced water consumption in FY 2009 by a total of about 141 million gallons—about 7.8 percent from the prior year and 14.9 percent from the FY 2007 baseline—saving more than $1.5 million in utility costs.

Steve Frankel
Ken Kono
Ron Thompson
John West
*National Aeronautics and Space Administration*
*Ames Research Center*
Moffett Field, California

The National Aeronautics and Space Administration's Ames Research Center (ARC) partnered with the City of Sunnyvale to pursue goals to reduce consumption of potable water and reuse more water on site. In FY 2006 the team proposed a project including switching a significant amount of potable water usage to a reclaimed water system, creating a native plant garden restoration initiative, and instituting an aggressive water conservation educational outreach program. After several years of determination, the team was able to creatively overcome budgetary and project obstacles to shepherd the project to realization in FY 2009. The reclaimed water is used for landscape irrigation, aircraft washing, and construction site dust control. The Native Garden Initiative converts high maintenance, water intensive turf/grass areas to low-maintenance, drought tolerant native plants while reducing greenhouse gases by 1.6 metric tons of carbon dioxide per year. The outreach program targets both the ARC community and the general public. The combined results of the overall effort decreased Ames' potable water consumption by more than 80 million gallons and saved $404,000 in FY 2009.

## Contracting Officer—Awards to Individuals

Pamela Komer
*U.S. Department of Homeland Security*
*U.S. Coast Guard*
*Civil Engineering Unit Cleveland*
Cleveland, Ohio

Pamela Komer is a contracting officer based out of Civil Engineering Unit Cleveland, but her passion for energy conservation and sustainability has led her to become the U.S. Coast Guard's (USCG) premier energy project contracting officer and an invaluable asset to the program. To date, she has awarded three energy savings performance contracts and two utility energy service contracts, all as collateral duty to her $50 million per year of non-energy related contracts. The initial five projects represent about one-third of all alternatively financed projects for USCG and include several USCG "firsts": the first landfill gas to energy project of 4.2 megawatts (MW); the first large-scale wind project of 2 MW; and the first UESC with a local utility in Cape May, New Jersey (which used a multi-contract approach including a renewable ESPC as well as non-financed energy projects). Her recent contributions also extended to procurement of energy consulting support, several non-financed water and energy efficiency projects, and pilot projects including energy metering, water audits, and renewable energy credits.

Kristine Murray
*U.S. Department of the Interior*
*U.S. Geological Survey*
Madison, Wisconsin

Kristine Murray is a contract specialist with the U.S. Geological Survey (USGS) Eastern Region Acquisitions and Grants Office. During her first 18 months with the Bureau she implemented 3 energy savings performance contracts (ESPC) totaling $9.7 million—an extremely rigorous timeline—including the first alternative financing contract ever executed by USGS. Together the ESPC projects will save 13 billion Btu of energy, 608,000 gallons of water, and $244,500 in utility costs, and will generate nearly 141 megawatt-hours of renewable energy annually. Further, Ms. Murray successfully incorporated American Recovery and Reinvestment Act (ARRA) funds into the third ESPC. She leveraged the contract vehicle to expedite the completion of ARRA projects and optimized contract financing for additional non-ARRA funded projects. She was one of the first Federal contracting officers to not only ask if ARRA funding could be used within the ESPC process, but to actually put the tool into action—an innovative step in the procurement process by all Federal agency contracting standards.

Debby Kephart
*Department of the Navy*
*Naval Facilities*
*Engineering Command*
*Specialty Center Acquisitions*
Port Hueneme, California

As the contracting officer on the Department of the Navy's energy savings performance contract (ESPC) team for the past 10 years, Debby Kephart was instrumental in negotiating a wide range of complex ESPCs to help the Navy meet its energy goals and increase energy security of Navy and U.S. Marine Corps installations. In FY 2009 Ms. Kephart worked on a particularly impressive project—the award of a 39 megawatt cogeneration plant at Yokosuka, Japan. The award was completed in 18 months from conception to delivery order and at the time of award was the largest ESPC in the Federal Government. Ms. Kephart also negotiated and awarded eight ESPCs totaling $85 million prior to the expiration of the Department of Energy's Super ESPC contract vehicle in 2009. Her exceptional efforts to keep the projects on track saved a tremendous amount of time and expense. Ms. Kephart helped to improve the cycle time and standardization of the Navy ESPC process through a yearlong Lean Six Sigma effort, contributing to the development of 46 templates used in each step of the ESPC process.

## Exceptional Service—Awards to Individuals

Frank Brown
*U.S. Department of Energy*
*Bonneville Power Administration*
Seattle, Washington

Frank Brown has worked for the Department of Energy for more than 30 years and has been with Bonneville Power Administration (BPA) since 1981. In 1996 he became the manager of the Federal Agency Energy Efficiency Program, working to help Federal agencies in the Pacific Northwest improve their energy efficiency. Mr. Brown maintains program flexibility that allows agencies to receive services ranging from design assistance to turn-key implementation. He has drafted several utility energy service contracts and interagency agreements that provide Federal agencies access to the program's resources, each one customized to meet individual agency requirements. In FY 2009, Mr. Brown took on the additional responsibility of being the Energy Efficiency Representative for all Federal agencies served by BPA and the Federal Sector Lead for BPA's Energy Efficiency Group, overseeing the completion 53 projects resulting in savings of more than 103 billion Btu of electricity and 2 billion gallons of water. By the end of the year, the Federal Program had both the largest dollar amount of active projects in its history, as well as the largest pipeline of funded projects to be implemented in future years—proof of Mr. Brown's tireless efforts to find new opportunities and his true dedication to energy efficiency.

Jennifer Mann
*U.S. Environmental Protection Agency*
*Region 9 Laboratory*
Richmond, California

Jennifer Mann, a 22-year Environmental Protection Agency (EPA) employee, has spent the past 17 years of service at EPA's Region 9 Laboratory and currently serves as the facility manager. During her tenure, Ms. Mann has demonstrated leadership and a hands-on management style to help the small facility become more sustainable. Reducing the energy use of a small facility can be challenging, as several variables such as changes in personnel to weather can cause large swings in energy use from year to year. Nonetheless, in FY 2009 the laboratory's energy use decreased 10.4 percent and greenhouse gas emissions decreased 11 percent from FY 2008. This is due in part to a 60-kilowatt energy cogeneration project for which Ms. Mann served the key role as project manager and point of contact for all involved parties, as well as other energy savings measures including occupancy sensors, natural lighting, and ENERGY STAR® products. Together these measures saved more than 2 billion Btu and $80,000 in FY 2009. Ms. Mann also conceived and implemented a composting project that processes lunchroom waste into organic fertilizer to replace chemical fertilizer for onsite landscaping. The laboratory—and EPA—has greatly benefited from Jennifer Mann's leadership in reducing its environmental footprint.

Jim Heller
*Department of the Navy*
*Naval Facilities*
*Engineering Command*
*Engineering Service Center*
Port Hueneme, California

Jim Heller is the Naval Facilities Engineering Command (NAVFAC) Engineering Service Center Energy Programs Manager, and has spent the better part of 28 years supporting the Department of the Navy Energy Program. Mr. Heller leads and supervises staff to implement energy projects, validate new technologies, assess the feasibility of renewable energy, and improve energy awareness and recognition. Under his leadership, Navy and Marine Corps shore installations executed more than $450 million in energy and water efficiency projects in FY 2009, resulting in a 15.2 percent reduction in energy intensity relative to the 2003 baseline. Since 2000, the program has avoided more than $3.3 million in cumulative shore energy costs. Mr. Heller and his team also spearheaded the construction of nearly 80 megawatts of cogeneration, 6 megawatts of wind energy, and 4 megawatts of photovoltaic generation. Mr. Heller helped to facilitate the Navy's early adoption of third-party financing in the mid-1990's, which has led to $1.2 billion to date in project investment that reduce Navy energy demand by more than 6 trillion Btu per year. His commitment and dedication are exemplified by the Energy Program's success, which enables the Navy to continue to achieve its energy reduction goals.


U.S. Department of Homeland Security, US Coast Guard Yard

U.S. Fish and Wildlife Service, Parker River National Wildlife Refuge Visitor Center and Administrative Headquarters

Navy Region Southwest, Naval Base San Diego

U.S. Department of Energy, Oak Ridge National Laboratory

Navy Region Southwest, Naval Base Coronado


John West, National Aeronautics and Space Administration, Ames Research Center

Department of the Army Picatinny Arsenal Boiler Plant

Naval Station Everett Bachelors Enlisted Quarters

U.S. DEPARTMENT OF ENERGY | Energy Efficiency & Renewable Energy

FEMP
Federal Energy Management Program