

Federal Energy and Water Management AWARDS

2012



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Federal Energy and Water Management Awards

Year after year, Federal employees like you inspire us to be the best we can. Individuals and teams around the world, inspired by a pioneering spirit, are demonstrating leadership in energy innovation and management.

This booklet highlights nine selections that represent a sample of the winners of the 2012 Federal Energy and Water Management Awards. As these show, much has been accomplished; but to meet the goals established through legislation and executive orders, there is much more work to do. We hope these best practices and innovative approaches will inspire you to learn more and lead the way at your site.

Please also be sure to submit nominations for the Federal Energy and Water Management Awards in 2013. Criteria and Guidelines will be posted at www.femp.energy.gov/awards.

Sincerely,
Timothy D. Unruh, PhD, PE, CEM, LEED-AP
Program Manager
Federal Energy Management Program
U.S. Department of Energy



U.S. Department of the Air Force

Captain Reid Touchberry Misawa Air Base, Japan

Following Japan's catastrophic 9.1 magnitude earthquake and subsequent tsunami in March 2011, Air Force energy manager Capt. Reid Touchberry expertly led a diverse team in extremely challenging circumstances. Touchberry worked tirelessly to safely manage power restoration and maintain energy security in key facilities. Building upon his team's emergency response efforts, Touchberry leveraged momentum to help Misawa Air Base become a long-term energy security leader.

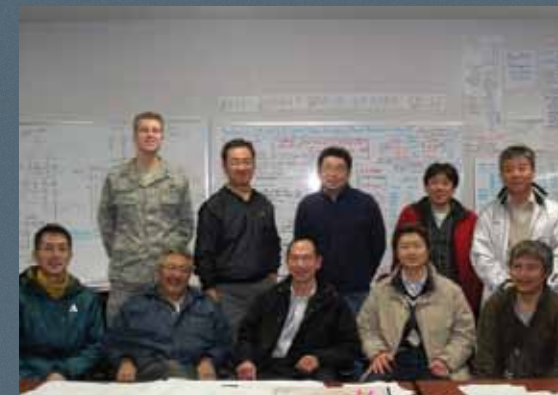
Capt. Touchberry authored a comprehensive Power Management Plan to maintain hourly manual monitoring of base energy demands. His efforts resulted in a reduction of 19.4 billion Btu over a six month-period, resulting in savings of \$720,000.

Capt. Touchberry's team also implemented and institutionalized "No-Cost/Low-Cost" energy savings programs that resulted in another savings of \$741,000 in fuel costs in FY 2011.

In the face of adversity, Capt. Touchberry's multi-faceted role as a leader and energy champion, shows how dedication, persistence, and teamwork can bring energy security to new levels of readiness and capability under the most difficult circumstances.



Capt. Touchberry created the Base Energy Nerve Cell, a group that includes active duty technicians, Japanese engineers and technicians, contractors, and his small energy team.





U.S. Department of the Army

Fort Bragg, North Carolina Linden Oaks Community Emergency Services Station

Ray Barbeau, Rob Harris, Christine Hull

The Community Emergency Services Station (CESS) is located in Linden Oaks, a 1,500-unit residential community that houses 5,500 soldiers and families at Fort Bragg, NC. The \$2.7 million, 8,250 square foot facility is the first designed and constructed by the U. S. Army to achieve certification as Leadership in Energy and Environmental Design (LEED) Platinum. The facility includes a fire station, police operations center, emergency medical services, a decontamination area, fire truck maintenance, physical fitness, dormitory rooms, dayroom and dining space.

The station was built with insulated concrete form walls, includes a transpired solar collector that works as a heat exchanger, geothermal heat pumps

supported by 14, 400 ft deep wells, a domestic hot water system, daylighting with clerestory windows and light shelves to reach 90 percent of the interior, and a cool roof that keeps the surface 50 degrees cooler in summer. Sustainable furnishings are also used in the facility.

A “Green Boot” program provides occupant orientation to optimize sustainable design features, and a “Green Housekeeping” program ensures that biobased and sustainable cleaning products are selected and used, including fire truck washing. The facility’s use of water harvesting for vehicle washing and toilet flushing could become the new “standard” practice for many installations with vehicle maintenance facilities.



The evaluation of the last six months of energy use data shows that the Community Emergency Services Station is on target to beat the proposed cost and energy use. The CESS was designed to be 35% more energy efficient than a typical building of its kind.



U.S. General Services Administration

New England Region

Thomas P. O'Neill, Jr. Federal Building, Boston, Massachusetts

Peter Barker, Noretta Lleshi, Waikit Lui, Jeffrey Schetrompf, Sarah Wenninger

The O'Neill Federal Building is unique in its design and function. Two renewable energy projects occupy the same building footprint. This hybrid approach combines solar photovoltaic and solar thermal technologies in one continuous system. The innovative installation doubles the benefit to provide the highest energy density per square foot, as well as the highest financial return. The project will also avoid estimated annual greenhouse gas (GHG) emissions of 32 metric tons.

Bringing the local utility in at the beginning of the project avoided the problem of exceeding interconnection limits and other potentially costly project changes.

The GSA team selected a technology combination that had never been deployed in a large installation in the United States and demonstrated how taking a small calculated risk on an underutilized technology can pay large dividends. This project was also selected to be one of GSA's Green Proving Ground 'test bed' projects. To find out more about the Green Proving Ground visit www.gsa.gov/portal/category/102491.

Even with decreased photovoltaic performance during winter months, when cloud cover and snow reduce system output, the project team estimates that the system will meet or exceed GSA's 20 percent thermal savings goal annually.





U.S. Department of Homeland Security

United States Coast Guard Puerto Rico

Anthony Arles, Charlotte Armstrong, Pamela Komer, Jesse Maestas, Cassandra Walbert

Awarded in December 2010, the energy savings performance contract (ESPC) and energy services agreement (ESA) for roof renovation and photovoltaic power production at multiple Coast Guard facilities in Puerto Rico is the largest solar project in the history of the Department of Homeland Security and moreover, the project's execution strategy is the first of its kind for the federal government.

The progressive strategy allowed the Coast Guard to take advantage of a U.S. Treasury Grant tax incentive. Because utility agreements are typically limited to a maximum term of 10 years, this grant helped the Coast Guard combine the ESA with the ESPC, resulting in a self-funding project and long term stable cost supply of power for 23 years.

Pilot installations allowed the team to identify best practices for proper integration and installation. The second phase of the project incorporates lighting, controls, HVAC, weatherization, and window film upgrades. Virtually all the work, with the exception of the roof restorations, will be funded out of energy savings.

The use of project funding and the bundling of renewable projects with operation and maintenance projects and traditional energy conservation measures at multiple sites has set a new USCG precedent and a model for other agencies to follow.



Because of climate, aging building stock, and high electricity costs, the 360 USCG buildings under the ESPC were prime for this project. The innovative strategy included bundling 1) restoration and replacement of roofing on dilapidated housing with the installation of high-performance photovoltaic technology, 2) including variable-refrigerant HVAC systems that match refrigerant flow rate to building load, and 3) installing cool roof technology. Also, by consolidating four locations into one contract, the team's strategy streamlined what would have been multiple acquisitions and consolidated multiple technologies to reduce maintenance burdens.





U.S. Department of the Interior

National Park Service Santa Monica Mountains National Recreation Area Student Intern Center Thousand Oaks, California

Ric Alesch, Lorenza Fong, Tara Moore, Bethany Mills, John Williams

This 3,200 square foot National Park Service (NPS) building provides housing for 16 student interns and researchers. It is the first grid-tied net-zero energy facility in the National Park System and has achieved the Federal zero-fossil-fuel new construction standard set for FY 2020 ten years ahead of schedule. A 35 kilowatt photovoltaic (PV) system provides all the building's electric power, as well as surplus power for a nearby NPS building. An important best practice in developing the PV system was to involve the

power company in early negotiations which was critical to tying the two buildings together under one meter.

The facility also uses a ground loop heating and cooling system that is "watered" by the tertiary-treated septic system effluent. This "first-of-its-kind" innovation results in greater thermal transfer between the soil and pipes and turns otherwise wasted effluent into a beneficial resource.



The 60 square foot solar hot water heater and the 8-ton ground source heat pump produce about 21 million Btu of renewable thermal energy annually. Assuming a 20-year life cycle this will result in a total renewable energy production of over 2,000 million Btu. Combined with the photovoltaic system the heater and pump will offset the building's entire energy demand, and most, if not all, of the electrical demand for a nearby office building.



U.S. Marine Corps

Marine Corps Logistics Base Albany, Georgia Landfill Gas Cogeneration Project

Marine Corps Logistics Base Albany (MCLBA) successfully implemented a \$20 million energy savings performance contract (ESPC) that delivers process steam and 1.9 megawatts of renewable electric power using landfill gas from a nearby landfill. Using fuel to generate electricity and waste heat to generate steam, the project is expected to generate 19.3 percent of the base energy needs from renewable sources. Since the fuel is landfill gas, both the electricity and the steam produced are considered renewable energy.

The cogeneration facility - which qualifies for LEED silver certification - includes a cool roof; solar day lighting; and advanced water efficiency measures. Energy modeling shows it is 48 percent more efficient than other similar-use facilities. Annual

energy savings and cost avoidance is estimated at more than \$2 million, and system performance is guaranteed for 22 years with estimated life cycle cost avoidance of \$43 million.

The innovation of Logistics Base Albany can help other installations take advantage of the potential of landfill gas cogeneration. It serves as a model for how multidisciplinary experts from multiple agencies can work together. It also shines a light on the power of community partnership and how federal, state, and local governments can successfully draw upon private sector capital to deliver renewable energy to support mission-critical objectives.



By implementing the landfill gas (LFG) cogeneration plant, Marine Corps Logistics Base (MCLB) Albany increased its annual renewable energy generation to 10 percent of its total electricity consumption. By conducting a water leak detection survey and implementing recommendations from the survey, MCLB Albany reduced water consumption in the Maintenance Center by 5,000 gallons per day. MCLB Albany also developed a checklist to be used at night and on weekends to secure processes and prevent unnecessary water consumption.





National Aeronautics and Space Administration

Langley Research Center, Hampton, Virginia Waste-to-Energy Biomass Steam Plant

Stephen Bollman, Michael Croft, Bill Leonard, John MacDonald, Wes Wigginton

To successfully facilitate a Biomass Steam Optimization Program, NASA Langley Research Center and the City of Hampton, VA took advantage of earlier infrastructure project work; focused on operational, cultural, and behavioral changes; and overcame communication gaps to change long-standing operational practices and biases.

After upgrading the infrastructure between the Waste-to-Energy biomass steam plant and the NASA Steam Plant the team was careful to spend time educating groups affected by the changes; design a three-month pilot to test new procedures; and ensure all parties approved of new standard operating procedures. To achieve these goals, NASA initiated unique cross-training programs between operations personnel at two different sites.

The result of proactive and consistent communications and planning resulted in the more efficient utilization of the Biomass produced steam for wind tunnel research previously powered by fossil fuel. NASA personnel realized a 40 percent reduction in natural gas consumption in FY 2011 and a \$500,000 savings over the previous year. Water consumption fell by 2 million gallons, and greenhouse gas emissions fell by 8.8 million pounds of equivalent carbon dioxide.

The project best practices are now institutionalized in NASA's Competency Management System, a collection of business processes, data sets, and tools used to categorize, identify, measure, and forecast the agency's corporate knowledge base. It is also highly transferable to other Federal sites located near any potential waste-to-energy stream.



The most significant environmental benefit of the Langley Research Center's biomass energy project is the elimination of pollutants tied to greenhouse gas emissions. The waste-to-energy biomass steam facility also reduces the amount of solid waste entering landfills.



U.S. Department of the Navy

Charles Benson
Contracting Officer
Naval Facilities Engineering Command Northwest
Silverdale, Washington

Over the course of 25 task orders, Charles Benson has played an instrumental role in awarding nearly \$34 million in utility energy service contract (UESC) projects and energy services for NAVFAC Northwest and has become the Navy's expert in the Northwest Region for UESCs. When contracting authority for the energy program transferred to Naval Facilities Engineering Command (NAVFAC) Northwest in 2006, Mr. Benson was assigned responsibility to implement two new UESC basic ordering agreements one using utility rebates totaling \$350,000 and another with rebates exceeding \$1.5 million.

With no prior UESC experience, Mr. Benson took the initiative and conducted the appropriate research to learn about the program, navigate approvals, and educate his superiors in order to implement the contracts. Mr. Benson has served as a mentor to his co-workers, an educator to his superiors, and a champion to his site.



Mr. Benson provided support to NAVFAC Northwest that resulted in tremendous energy savings and enabled the Navy to meet rigorous energy and water goals.



U.S. Department of Veterans Affairs

Houston Veterans Affairs Regional Office Building Houston, Texas Green Initiative

The Veterans Affairs Houston Regional Office Green Team concentrated efforts in three key areas: water efficiency, lighting retrofits and super-efficient cooling.

First, the team installed water saving devices like automatic flush valves, touch-free faucets with short run times, microprocessor lawn sprinklers controlled for precise zone watering, and water alarms alerting operators about possible leaks. Second, the Green Team retrofitted 1,897 lighting fixtures containing 5,637 individual lamps that resulted in a 10 percent reduction in overall energy use. And third, the team replaced a 15-year-old,

air cooled chiller with a new super efficient water-cooled chiller coupled with an energy management system to keep the system running in “optimized mode” at all times, reducing energy consumption by 15 percent.

As a result of these proactive measures, the site reduced its electrical and water usage by over 27 percent in FY 2011, resulting in savings of approximately \$9,000 a month. Estimated lifecycle cost savings on the measures implemented at this ENERGY STAR building are estimated at \$32.4 million.



The Houston Veterans Affairs Regional Office building was awarded certification as an ENERGY STAR building for 2012 by the Environmental Protection Agency (EPA) in



2012 Federal Energy and Water Management Award Winners

Contracting

Charles Benson

U.S. Department of the Navy
Naval Facilities Engineering Command Northwest
Silverdale, Washington

Kevin Funk

U.S. General Services Administration
Public Buildings Service Mid-Atlantic Region
Philadelphia, Pennsylvania

Exceptional Service

Daniel Gore

U.S. Department of Homeland Security
U.S. Coast Guard, Washington, DC

Lawrence Johnson

U.S. Department of the Air Force
Minot Air Force Base, North Dakota

Dan Magro

U.S. Department of the Navy
Naval Facilities Engineering Command
Engineering Service Center
Port Hueneme, California

Individual Fiscal Year 2011 Achievements

Antonino Piluso

U.S. Department of the Navy
Naval Air Station Sigonella
Sicily, Italy

Elizabeth Toftemark

U.S. Department of the Air Force
Scott Air Force Base, Illinois

Capt. Reid Touchberry

U.S. Department of the Air Force
Misawa Air Base, Japan

Program

Lt. Gen. Robert Allardice

Col. Bobby Fowler

U.S. Department of the Air Force
Air Mobility Command
Scott Air Force Base, Illinois

U.S. Department of the Air Force

374 CES Yokota Air Base Energy Team
Yakota Air Base, Japan

Thomas Caffee

John Payne

Ray Smalling

Cdr. Mike Tasker

James Van Coney

U.S. Department of the Navy
Naval Facilities Engineering Command Northwest
Naval Station Everett, Washington

U.S. Department of the Navy

Commander Fleet Activities Yokosuka
Yokosuka Naval Base, Japan

Doyle Allen

Jim Green

U.S. Department of Transportation
Federal Aviation Administration
Mike Monroney Aeronautical Center
Oklahoma City, Oklahoma

Stephen Bollman

Bill Leonard

Wes Wigginton

National Aeronautics and Space Administration
Langley Research Center
Hampton, Virginia

Steve Davis

Andrew Walters

U.S. Department of Veterans Affairs
National Cemetery Administration
Washington, DC

Project

Brad Butler

Mike Kinman

Eric Watson

U.S. Department of the Air Force
Dyess Air Force Base, Texas

Ray Barbeau

Christine Hull

U.S. Department of the Army
Fort Bragg, North Carolina

Michael Croft

John MacDonald

Charles Castelli

Charles Gibson

Thomas Wildoner

U.S. Department of the Army
Tobyhanna Army Depot, Pennsylvania

Gene Curtiss

Marisela Leyva

Donald Vincent

U.S. Department of the Army
Fort Bliss, Texas

Jeff Allen

Sidney Mohseni

Bernadette Rose

U.S. Marine Corps
Marine Corps Base Camp Pendleton, California

U.S. Marine Corps

Marine Corps Logistics Base Albany, Georgia

Greg Alsin

Lee Anne Fowler

Thomas Wellner

U.S. Department of the Navy
Naval Undersea Warfare Center Division Keyport,
Washington

U.S. Department of the Navy

Naval Air Station Jacksonville, Florida

Nathan Edwards

Donald Robbins

Mir Khan

Robert Lopez III

Charles Howell

Jorge Perez

Ric Alesch

Bethany Mills

John Williams

U.S. Department of the Interior
National Park Service, Santa Monica Mountains
National Recreation Area, Thousand Oaks, CA

Carol Fix

Meaghan Nelson

Todd Turner

Department of the Interior
U.S. Fish and Wildlife Service
Neosho National Fish Hatchery
Neosho, Missouri

Michael Crocker

Jackie Jacobson

Gary Williams

U.S. Department of the Interior
U.S. Fish and Wildlife Service
Audubon National Wildlife Refuge
Coleharbor, North Dakota

Anthony Arles

Pamela Komer

Cassandra Walbert

U.S. Department of Homeland Security
U.S. Coast Guard, Puerto Rico

Lorenza Fong

Tara Moore

David Hendrix

Craig Swedenborg

Sheri Fetherman

Lloyd Jones

Charlotte Armstrong

Jesse Maestas

Brian Bomgaars

Mark McCreedy

U.S. General Services Administration

Public Buildings Service Great Lakes Region
Gerald R. Ford Federal Building and U.S. Courthouse
Grand Rapids, Michigan

Peter Barker

Waikit Lui

Sarah Wenninger

U.S. General Services Administration
New England Region
Thomas P. O'Neill, Jr. Federal Building
Boston, Massachusetts

Bruce Bishop

Eric Murphy

Ed Weaver

National Aeronautics and Space Administration
Langley Research Center
Hampton, Virginia

Better Buildings (Fiscal Year 2011)

George Doktorczyk

George Norek

Brenda Teaster

U.S. Department of Energy
Argonne National Laboratory, Building 438
Argonne, Illinois

U.S. Department of Veterans Affairs

Houston VA Regional Office
Houston, Texas

Viri Chavez

William VanderJagt

Noretta Lleshi

Jeffrey Schetrompf

Anthony Dell'Arciprete

Ron Runnion

Marvin Kirshenbaum

Dejan Ristic

Honoring individuals and organizations making significant contributions to the efficient use of energy and water resources within the Federal Government.

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Renewable Energy

August 2012

Printed with a renewable-source ink on paper containing at least 50%
wastepaper, including 10% post consumer waste.