



# greengov<sup>SM</sup>

## SUCCESS STORIES

**T**hroughout the Federal Government, agencies are leading by example toward building a clean energy economy. This document outlines some examples of projects that will drive long-term savings, improve efficiency, reduce pollution, and eliminate waste. Agencies will build on these efforts to achieve the sustainability goals in Executive Order 13514.

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### Department of Energy

#### **National Renewable Energy Laboratory’s Research Support Facility (Golden, Colorado)**

Completed in 2010, the National Renewable Energy Laboratory (NREL)’s Research Support Facility in Colorado is among the most energy efficient buildings in the world. The building showcases cutting-edge energy-efficient building design and is designed to consume only the amount of energy generated by renewable power systems located on or near the building. To achieve this, photovoltaic (PV) arrays were installed on the top of the building and adjacent parking areas, the building was oriented in a way to take maximum advantage of the sun, and advanced light-reflecting devices direct daylight to achieve 100 percent workspace day lighting on sunny days. The Research Support Facility’s energy performance is 50 percent better than a comparable building and DOE and NREL expect to save \$200,000 annually in energy costs.



Photo Credit: NREL

### **Sandia National Laboratories (Albuquerque, New Mexico)**

Based in New Mexico, the Department of Energy's Sandia National Laboratories Facilities Infrastructure team and Fleet Services teams developed a solar-powered cart in 2009 with the goals of creating a more energy-efficient campus, increasing renewable energy use, and reducing greenhouse gas pollution. Their modified motor cart runs on solar energy produced by its rooftop panels that charge the cart's batteries. Today, 7 of Sandia's 156 electric carts are solar-powered. Compared to the traditional electric carts they replaced, DOE's new solar-power carts are expected to save more than \$23,000 over a ten-year life cycle through decreased charging infrastructure needs and lower battery replacement costs.



Photo Credit: Sandia

### **Idaho National Laboratory (Idaho Falls, Idaho)**

Beginning in 2009, the Department of Energy's Idaho National Laboratory implemented several sustainable transportation measures, including switching to bio-diesel to fuel its 103-bus fleet, consolidating bus routes, and replacing older buses with buses that can host more passengers and that are more fuel-efficient. The Laboratory also converted 75 percent of its light-duty fleet to alternative-fueled vehicles and hybrids. Overall, these measures cut the Laboratory's petroleum consumption by 21 percent, increased alternative fuel use by 56 percent, and saved an estimated \$175,000 annually for each of the seven consolidated bus routes.



Photo Credit: INL

### **Department of Homeland Security**

#### **Coast Guard Sector Northern New England's Field Office (Southwest Harbor, Maine)**

In 2009, the Coast Guard Sector Northern New England's Field office in Maine partnered with the Coast Guard Electronics Support Detachment to undertake a series of projects to reduce the environmental impacts of its Coast Guard Housing. Energy conservation efforts included inspecting current mechanical and electrical systems, conducting energy audits, compiling energy consumption data, installing LED lighting, and initiating a housing renovation project to incorporate the installation of spray foam insulation in the walls and attic insulation. To capitalize on the efficiency improvements, staff installed solar photovoltaic (PV) panels and a solar thermal system on a Coast Guard housing duplex. Staff also installed the Coast Guard's first solar- and wood pellet-powered boiler



Photo Credit: Coast Guard

to meet the duplex's heating needs. To date, the renewable energy installations have reduced the Field Offices energy costs by roughly 80 percent for the housing duplex.

### **Coast Guard Yard at Curtis Bay (Curtis Bay, Maryland)**

In 2009, the Coast Guard switched on their largest renewable energy project to date. The Coast Guard Yard, the Coast Guard's shipyard in Curtis Bay, Maryland, installed a new electricity and steam power plant that runs on methane tapped from the Baltimore City-owned Quarantine Road Landfill. The power plant includes four methane-powered generators which, using methane created by decaying garbage, each produce around one megawatt of electricity. The \$41 million project will be paid for entirely from the annual savings realized by generating electricity on site.



Photo Credit: Coast Guard

### **Department of the Interior**

#### **Grand Canyon National Park Visitors Center (Grand Canyon, Arizona)**

In 2009, the National Park Service's Grand Canyon National Park in Arizona installed 84 photovoltaic (PV) panels on and around its Visitors Center. In 2010, the panels produced enough power to cover 40 percent of the Visitor Centers' electricity needs and saved the Center more than \$3,300 in electricity costs. The Center features an exhibit about solar energy and the Park's solar panels, educating the 4.5 million visitors about the clean and renewable energy alternative. The Visitor Center installed additional PV panels in 2011, bringing the PV system's total generation capacity to 30 kilowatts.



Photo Credit: NPS

#### **Parker River National Wildlife Refuge (Newburyport, Massachusetts)**

The Fish and Wildlife Service's Parker River Visitor Center and Administrative Headquarters in Massachusetts was constructed in 2003 as a model of sustainable design, boasting a super-insulating building envelope, passive solar design, and high-efficiency lighting. In 2009, the Center installed a solar photovoltaic (PV) system, which has generated more than 67,000 kilowatt-hours of electricity to date and supplies 25 percent of the facility's electricity needs. The Refuge's more than 255,000 annual visitors can view the PV system's performance on the Center's live interactive display. The facility also installed a natural gas-fired Energy Star-labeled heating, ventilation, and air conditioning system and replaced existing floodlights with CFL bulbs. In 2010, the Center's



Photo Credit: FWS

electricity bill decreased by \$20,000 and 100,000 kilowatt-hours (compared to 2003 levels).

### Department of Veterans Affairs

#### **Martinsburg Medical Center Green Cafeteria (Martinsburg, West Virginia)**

In 2010, the Martinsburg Veterans Affairs Medical Center (VAMC) partnered with farmers to bring healthy, locally grown foods from veteran-owned farming businesses to the VA patient meal service. During the summer of 2010, nearly 30 percent of all fresh produce purchased was sourced from local farmers. Resourceful staff members identified a local veterans transitional housing non-profit that would accept VA's daily donations of uneaten but still edible food and also began composting food scraps not suitable for donation. Since mid-2010, VA staff donated 15,000 pounds of food to the non-profit and composted more than 26,000 pounds of food waste, saving valuable taxpayer dollars in avoided food disposal costs. In 2010, VAMC's food waste reduction efforts cut dining waste by more than 91,000 pounds, and saved nearly \$67,000 from reduced food purchases and avoided landfill fees.



Photo Credit: VA

### Environmental Protection Agency

#### **Water Conservation Program (Washington, DC)**

The Environmental Protection Agency's (EPA) agency-wide water conservation program enabled it to achieve impressive water use reductions in 2010 of 10.1 million gallons, an 8.5 percent reduction in water intensity from 2008, and a nearly 19 percent reduction from 2007. EPA integrated 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. EPA exceeded its 2010 water reduction target 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. Although EPA's water costs increased in 2010 due to the rising costs of water, the Agency's water savings help avoid more than \$90,000 in additional costs compared to 2009.



Photo Credit: EPA

## General Services Administration

### **Hammond Federal Courthouse (Hammond, Indiana)**

In 2010, the General Services Administration (GSA) took steps to improve the efficiency of the Hammond Federal Courthouse in Indiana. GSA installed water-saving flush handles and diaphragms to the building's toilets and urinals, which are projected to save approximately 21,000 gallons of water per year. GSA also applied a white coating to the Courthouse's roof, which will help reflect the sun's rays and extend the life of the roof. The cool white roof will decrease the building's air conditioning needs during the summer, saving an anticipated \$73,500 in annual energy costs.



Photo Credit: GSA

### **Iowa City Federal Building and Post Office (Iowa City, Iowa)**

Located in Iowa, the General Services Administration's (GSA) Federal Building and Post Office is a multi-purpose facility that houses several Federal tenants, including the U.S. Postal Service, U.S. Geological Survey, and the Veterans Health Administration. In 2009, GSA created an energy efficiency action plan for the facility and began executing a number of recommendations in 2010, including installing energy-efficient lighting components, replacing and reducing the number of corridor ceiling fixtures, and adding timers and sensors to outdoor lighting. GSA also saved energy by replacing entry doors and windows and adding timers to parking lot outlets for Postal vehicle block heaters. These equipment upgrades and GSA's pro-active approach to monitoring building equipment and conditions cut energy usage by nearly 20 percent from a 2003 baseline and energy costs by \$10,000 annually.



Photo Credit: GSA

### **John W. McCormack Post Office and Courthouse (Boston, Massachusetts)**

Originally built in 1933, the General Services Administration (GSA) recently renovated the John W. McCormack Post Office and Courthouse in Boston to attain the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) Gold certification while also preserving the building's historic character. GSA reused 99 percent of the historical structure during the renovation, including oak parquet flooring and terrazzo flooring with marble inlay and the original doors refurbished with Forest Stewardship Council-certified wood. GSA also installed high-efficiency windows with enhanced sun shades, occupancy sensors, high-efficiency



Photo Credit: GSA

chillers, and maximized the use of natural day lighting. The building is projected to use 32 percent less water than a similar office building through its high-efficiency plumbing fixtures, a solar water pump, and cisterns that capture storm water runoff for irrigation of the green roof. In 2010, the building avoided \$53,000 in energy costs (compared to 2003 levels and normalized to 2010 energy prices).

### **Martin Luther King Jr. Federal Building (Atlanta, Georgia)**

In 2011, the General Services Administration (GSA) completed an extensive renovation of the nearly 80-year old Martin Luther King Jr. Federal Building in Atlanta, with a goal of restoring the building's historic features while lessening the building's environmental impact. Where possible, GSA made an effort to use locally-sourced building materials or materials made of recycled-content, including countertops made of crushed glass and masonry sited from local quarries. During demolition, GSA recycled old carpeting, ceiling tiles, and all other demolition waste. Inside, architects redesigned the floor plans to maximize natural light in an effort to reduce the use of electrical lighting and GSA installed low flow or waterless bathroom fixtures. Outside, contractors removed, cleaned, and reused 6,000 original stones. GSA anticipates the renovation will cut the building's electricity usage by 427,000 kilowatt-hours per year, resulting in an energy cost savings of 28 cents per square foot, or \$49,000 per year.



Photo Credit: Redcard Photography

### **Wayne Aspinall Federal Building and Courthouse (Grand Junction, Colorado)**

The General Services Administration (GSA) has set a goal to turn the 93-year-old Wayne Aspinall Federal Building and Courthouse in Colorado into the country's first net-zero energy usage historic building. Aiming for Leadership in Energy and Environmental Design (LEED) Platinum certification from the U.S. Green Building Council, GSA will install a geothermal heating and cooling system, a solar panel array, state-of-the-art LED and fluorescent light fixtures that will adjust in response to natural light levels, and storm windows with solar control film to reduce the energy required for heating and cooling. GSA expects to save roughly \$16,000 in annual energy costs after the renovation is completed in January 2013, as well as reduce peak energy demand by 125 kilowatts.



Photo Credit: GSA

## National Aeronautics and Space Administration

### **Ames Sustainability Base (Moffett Field, California)**

In 2009, the National Aeronautics and Space Administration (NASA) broke ground for the Ames Research Center's Sustainability Base, expected to be completed in mid-2011. The 50,000-square-foot building is being constructed in California to replace several older and resource-costly facilities. The building features a ground source heat pump system using 106 geothermal wells, efficient radiant heating and cooling systems, high performance insulation, and ultra low-flow plumbing. The building also features operable windows and excellent natural light allowing residents to create and maintain an optimal indoor environment. Many of the materials used to build and furnish the Base were locally procured, and, in many cases, included recycled elements. For example, the oak flooring used in the first- and second-floor lobbies was reclaimed from an old NASA wind tunnel. The building features a greywater treatment system and is targeting a 90 percent reduction in potable water consumption compared to traditional buildings of similar size. NASA estimates the building will pay back the increased initial cost within eight to nine years.



Photo Credit: NASA

## United States Postal Service

### **Morgan Mail Processing Facility (New York, New York)**

In 2009 the U.S. Postal Service (USPS) completed its first green roof on its Morgan Mail Processing Facility in New York City. At nearly 2.5 acres, the green roof is the largest in New York City. Nearly 90 percent of the original roof was recycled and reused. All of the roof's plants and vegetation are native to the region and comprise nearly 60 percent of the green roof's surface. The green roof will help to reduce storm water runoff, with a 75 percent expected reduction during the summer months at the facility. The roof also boasts a life expectancy double that of a conventional roof. Combined with other energy saving measures, the mail processing facility reduced its energy costs by more than \$1 million annually.



Photo Credit: USPS

### **Suncoast District Post Offices (Western Florida)**

In 2010, the U.S. Postal Service Suncoast District, which provides services to Florida's central residents, began instituting a number of waste reduction measures within the post offices making up the district that have cut its waste stream and disposal costs. The District achieved the majority of these savings by recycling undeliverable standard mail previously sent to landfills and by offering customers the option of recycling unwanted mail through its Discarded Lobby Mail program. The District also established a program that allowed employees to bring in materials from home to work to recycle since many of the local communities where the employees lived did not offer a convenient municipal recycling programs. The Suncoast District's waste reduction efforts have resulted in a nearly 400 percent increase in its recycling rate and the District has generated more than \$1 million in revenue from the sale collected recyclables since October 2010.



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