

DEPARTMENT OF THE INTERIOR

Energy Management Report Summary

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SECTION 1 – Management and Administration Summary

Agency Information

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A. Energy Management Infrastructure

1. Senior Agency Official

The Assistant Secretary - Policy, Management and Budget is the Department of the Interior's (DOI, Interior) Senior Sustainability Official responsible for meeting the goals of the Energy Policy Act of 2005 (EPAAct), Energy Independence and Security Act of 2007 (EISA), Executive Orders (EO) 13423 and 13514.

2. Agency Energy Team

Implementation of the Energy Management and Conservation Program within Interior is the responsibility of the Assistant Secretary - Policy, Management and Budget and is delegated to the Office of Acquisition and Property Management through the Deputy Assistant Secretary – Budget, Finance, Performance, and Acquisition. Interior's Energy Management Team consists of Senior Bureau Asset Management Officers who are responsible for managing Interior's real property assets. In addition, the Departmental Energy Conservation Committee (DECC), comprised of bureau representatives ranging from property management specialists to engineers, is a forum to communicate information regarding energy management and water conservation issues; discuss best management practices; and provide advice and recommendations to senior leadership on energy management initiatives and policies as well as guidance on bureau energy management operations.

Departmental organizations and bureaus with responsibility for energy and water management at Interior facilities include the following:

- Office of the Secretary, Office of Facilities and Administrative Services (OFAS);
- Bureau of Indian Affairs (BIA);
- Bureau of Land Management (BLM);
- Bureau of Reclamation (BOR);
- National Park Service (NPS);
- U. S. Fish and Wildlife Service (FWS); and
- U. S. Geological Survey (USGS).

B. Management Tools

1. Awards

Interior bureaus take advantage of incentive programs to reward their exceptional employees. Interior actively participates in the Department of Energy's Federal Energy Management Program (DOE FEMP) awards programs and related awareness campaigns. Interior also holds its own Environmental Achievement Awards, many of which focus on energy and water conservation.

Three Interior nominations were recipients of DOE's FY 2013 Federal Energy and Water Management Awards:

- **National Park Service – Mesa Verde National Park.** The Visitor and Research Center at Mesa Verde National Park, Colorado, received a Project Award. The NPS constructed a new 23,620 square foot Visitor and Research Center (VRC), a showcase high-performance building that demonstrates use of energy efficiency, renewable energy, water conservation, recycling, and environmentally preferable materials. Performance goals for siting, energy, water, materials, and indoor environmental quality were set at the earliest stages of the building delivery process. The project achieved Leadership in Energy and Environmental Design (LEED) Platinum Certification, a technically difficult feat because of the special challenges of a curatorial facility that is also open to the public. Temperature, humidity, lighting levels, and contaminants must be very carefully controlled, requiring innovative systems, careful design engineering, proper construction, and very extensive commissioning to secure the priceless and irreplaceable artifacts. The building includes improved envelope; reduced lighting; advanced controls; high-efficiency ground-source heat pumps; energy recovery; chilled beams and slabs; and on-site renewable energy systems. Energy use is estimated to be 193,893 kilowatt-hours (kWh) per year with 100,500 kWh provided by a 67 kilowatt (kW) solar photovoltaic (PV) system, 7,552 kWh by solar water heating, and 75,976 kWh/year by a micro-hydro turbine, such that renewable energy systems are capable of providing 95 percent of the building energy requirements. The VRC avoids an estimated 260 metric tons of carbon dioxide equivalent (MT CO₂e) – as much as the annual emissions of 54 passenger vehicles or 39 homes.
- **National Park Service – Santa Monica Mountains National Recreation Area.** The Visitor Center at the Santa Monica Mountains National Recreation Area (NRA) in California received a Project Award. The NPS completed the first grid-tied net-zero visitor center in the National Park System, achieving the federal standard for 2030 18 years ahead of time. A 94 kW PV system provides all the energy needs for the facility over the course of a year, and surplus energy from the system helps to offset the carbon footprint at other facilities in the NRA. The 7,000 square foot LEED Platinum facility is heated and cooled by an innovative and highly efficient ground and water source heat pump system using an artificial pond as the primary heating and cooling source. Extensive natural lighting and high-efficiency LED lighting with a daylight dimming system keeps electricity use a very low level. During the period from February 2012 to February 2013, the PV system produced over 91,000 kWh of renewable electricity, while only 34,400 kWh of electricity was purchased from the power company, which means the building achieved about 2.5 times net zero energy use. In total, the renewable energy systems avoid GHG emissions by 72 MT CO₂e annually, equal to taking 15 vehicles off the road for a

year.

- **U.S. Fish and Wildlife Service – San Luis National Wildlife Refuge.** The Headquarters and Visitor Center at San Luis National Wildlife Refuge (NWR) Complex, Los Banos, California received a Project Award. The FWS's first net-zero energy LEED Platinum certified building, the 16,500 square foot Headquarters and Visitor Center at San Luis National Wildlife Refuge Complex, is a model of sustainability. During the first year of operation, the new building produced 103 megawatt-hours (MWh) of renewable energy via nine PV arrays totaling 59.2 kW that helps save 42.2 MT of CO₂e annually (the annual emissions of nine cars). Seventeen new energy technologies used include: structural insulated panels; a cool roof; abundant daylighting achieved with "SolaTubes," clerestories, and skylights, and operable low-e glazed windows; passive and evaporative cooling; and energy-efficient lighting, yielding energy performance far better than 30 percent compared to an average building. Many building elements are composed of recycled materials such as: countertops; ceiling tiles; wallboard; wheat straw cabinetry; fly ash in the concrete; and certified sustainably harvested lumber. Low-VOC carpets, paints, and adhesives provide a healthy indoor work environment. Remarkably, 90 percent of construction waste was recycled. Water use is reduced more than 35 percent with low-flow and waterless plumbing that saves approximately 396,000 gallons annually. Xeriscaping, native plants, limited drip-irrigation, and stormwater containment conserve water outdoors. Interpretation of the facility's "green" features is highlighted by dynamic, interactive exhibits for the estimated 150,000 visitors annually.

DOI also holds its own internal awards competition – the Environmental Achievement Awards. Four of the winners of this competition focused on energy and water conservation (described below):

- **Bureau of Reclamation – Mr. Steven Holland.** In FY 2012, the BOR's Brackish Groundwater National Desalination Research Facility (BGNDRF) in Alamogordo, New Mexico, reduced its energy intensity by 290,880 kWh, or 53.6 percent of British thermal units (BTU) per square foot, from the previous year's baseline. The reduction was achieved even while the facility was supporting a record number of researchers. This impressive energy reduction was achieved through the ingenuity and hard work of Mr. Steven Holland. Mr. Holland was given a goal by his manager to reduce energy by at least 10 percent. By thoroughly investigating and understanding the building's systems, Mr. Holland found and implemented low-cost operations and maintenance practices that resulted in far greater energy reduction than the goal, proving that energy reduction is possible without significant investment. The capital cost for the improvements totaled approximately \$784.00. Mr. Holland was nominated for an individual award because he took an assignment and far exceeded his management's expectations. He did this through his personal drive, determination, creativity and innovation. BGNDRF was also the winner of DOE's 2012 Better Buildings Federal Award.
- **U.S. Fish and Wildlife Service – Neosho National Fish Hatchery Visitor Center.** The Neosho National Fish Hatchery (NFH) was established in 1888 and is the oldest operating federal fish hatchery. It raises endangered pallid sturgeon for recovery efforts in the lower Missouri River, rainbow trout for stocking in Lake Taneycomo, supports conservation of the endangered Ozark cavefish, and restoration of native mussels. The Visitor Center is architecturally designed to mimic the original headquarters from 1888. This federal hatchery is LEED Gold

certified. Energy conservation measures used throughout the building combine to yield energy performance at least 34 percent better than an average building. The 3.36 kW net-metered solar PV array produces 4.8 MWh per year of renewable electric power, which helps save 42 metric tons of greenhouse gases annually. Low-volatile organic compound emitting carpets, paints, and adhesives provide a healthy indoor work environment and many building elements are composed of recycled materials. Low-flow plumbing conserves 28,225 gallons of water annually and water-efficient landscaping such as native plants and forbs eliminate the need for irrigation. Storm water containment and drainage swales help to maximize water conservation. Recently completed solar water heaters save 26 metric tons of greenhouse gas annually. Four 50 watt solar panels are used to recharge batteries used in the automatic feeders, offsetting an additional 360 kWh of electricity.

- **U.S. Fish and Wildlife Service – New Model for Spawning, Incubation, and Nursery Operations, Dworshak National Fish Hatchery.** Dworshak NFH staff identified and implemented infrastructure improvements and operational flexibility, which allowed the Hatchery to save on average of 8,621 MWh per year in FY 2011 and FY 2012, when compared to FY 2010. Over 6,000 MWh per year were saved through an in-house strategic planning exercise that identified and improved energy inefficient operational methods. Dworshak NFH staff developed a new model for spawning, incubation and nursery operations that allowed the hatchery to significantly reduce the operation of electric boilers. The hatchery partnered with the Bonneville Power Administration BPA, who provided \$600,000, and the U.S. Army Corps of Engineers, who provided engineering support to implement the improvements.
- **U.S. Fish and Wildlife Service – San Luis National Wildlife Refuge.** See above.

2. Performance Evaluations

Interior recognizes the Energy Management Program responsibilities of facility managers, energy managers, designers, and senior leadership through the identification and incorporation of their responsibilities in performance evaluations and position descriptions.

3. Training and Education

In FY 2013, energy management training was provided for 1,911 personnel. Interior energy managers provided information to personnel on available energy management training, and encouraged them to attend as much training as operational requirements and funding permitted. Energy managers involved in building energy efficiency and water conservation have attended training and workshops offered by FEMP and the First Thursdays mini-seminars. Several personnel have also attended training offered by other organizations such as the Office of the Federal Environmental Executive, the Environmental Protection Agency (EPA), American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE), the Green Building Research Institute, and the American Association of Energy Engineers. DOI energy personnel attended on-site training and satellite broadcasts of FEMP courses on meeting ASHRAE sustainable performance and design requirements, metering technologies, power purchase agreements, energy saving performance contracts, and utility energy savings contracts.

The BIA has trained 75 of 85 Energy Specialists in the new Energy Specialist role of the Financial and Business Management System (FBMS), DOI's single system for accounting and financial management, contracting, personal property, fleet and real property management, grants and cooperative agreements management, travel and enterprise reporting. These Energy Specialists will maintain monthly cost and consumption records to satisfy energy reporting requirements.

The BLM piloted a Sustainability Inspection - Condition Assessment, Safety, Health & Environment Program which was developed to assess BLM facility compliance with sustainability mandates. Six BLM staff participated in on-site training at three Colorado Field Offices—Craig, Grand Junction, and Montrose.

BOR offices disseminated information and materials (including lanyards, posters and cards) informing all employees about energy and sustainable requirements, conducted briefings at all employee staff meetings to inform employees about recycling programs, and conducted property conference calls with field offices to discuss goals associated with sustainability. BOR Green Teams keep management informed by integrating sustainability topics into regularly scheduled staff meetings. In FY 2013, BOR personnel attended training on the Guiding Principles (including attending audits), Environmental Management System (EMS), green procurement, waste management, and recycling. The BOR instituted a sustainable buildings training series in FY 2013. The series began with a week-long training on the Guiding Principles, provided by DOE. Every few months after the initial training, a two-hour webinar was held to explore Guiding Principle requirements and related sustainable building requirements in more depth and share on-the-ground examples of sustainable building design, construction and operations.

In FY 2013 the FWS's Energy Coordinator publicized FEMP and ENERGY STAR® training opportunities available to the Regional Energy Managers as they become known (e.g., FEMP's "First Thursday of the Month" training, and EPA's Portfolio Manager). The FWS Energy Coordinator gave a presentation entitled, "Reducing Our Carbon Footprint Through the Greening of Federal Facilities" at the 5th Annual Renewable Energy Technology Conference & Exhibition (RETECH 2013) in Washington, DC on September 11, 2013. This information is being made available to Regional Energy Managers.

The NPS provided annual training for park employees responsible for energy and water reporting. FBMS Energy Clerk and Energy Accounts Payable training was provided to ensure proper inputting of energy data in DOI's new single platform system. The NPS Metering Tool training on how to enter critical data was provided via webinars to all parks in FY2013. The Climate Change Response Program, in partnership with the Leadership Development Program, offered the Climate Change Leadership Series in FY2013 to Park Superintendents and deputies. Approximately 100 park staff attended this series of six webinars, which covered a variety of climate change topics and included energy management and sustainability at parks. Park facilities management staff received training on demonstrating compliance with the High Performance Sustainable Buildings requirements. Finally, the NPS offered Climate Friendly Parks workshops throughout the year for parks wishing to address climate change at their park.

The USGS Energy Program distributed a newsletter "Efficiency News You Can Use" that highlights training and webinars available to facility managers. USGS personnel involved with the multi-site Energy Savings Performance Contracts (ESPC) for the bureau have attended training courses on the ESPC process. USGS personnel have completed web

training about sub-meters, drives, electrical distribution systems, water conservation, Building Management Systems, and control and measure system, attended the annual National Electric Code refresher training 3-day course, and received one week of Certified Energy Manager training from the Association of Energy Engineers.

The DOI Charge Card Refresher Course encourages cardholders to visit www.gsa.gov/greenproductscompilation for a green products list. "Green" products include EPA-designated recycled content products, ENERGY STAR ® qualified products, FEMP-designated energy efficient products, WaterSense water efficient products, alternative fuel vehicles, biobased products, environmentally preferable products, and products with no or low toxic and hazardous material content.

BOR purchase card holders receive periodic emails providing information on ENERGY STAR ® and Green products and guidance for green purchasing during staff meetings. Buying guides are posted on the local network shared drive and Reclamation's sustainability Intranet.

The FWS implemented a Green Procurement and Waste Prevention and Recycling Program (Greening Program) which are a part of the Service's overall approach to environmental management. Specifically, the FWS continued to promote all "greening products and services," including ENERGY STAR® products through established policies and the Service's "Green Procurement Manual: A Practical Greening Manual for the U.S. Fish & Wildlife Service," (revised every five years, effective March 2008). In FY 2013, the Service updated its "Inside FWS" website to include three new sections: 1) Service Policy/Guidance; 2) Greening Resources (DOI, General Services Administration (GSA), EPA, FedCenter, U.S. Department of Agriculture (USDA), DOE, and UNICOR); and 3) Green Purchasing Training (including FEMP Webinars).

In the past several years, the NPS has sponsored a series of one-hour webinars that examine different facets of green purchasing. These webinars have featured NPS guest speakers with a short Q&A session at the end. A number of the guest speakers addressed energy efficient product purchasing, strategies, and tools. During FY2014, the green purchasing webinar series will continue on two key procurement topics: 1) Environmental Purchasing Provisions in the Federal Acquisition Regulation; and 2) Integrating Green Provisions in Construction Contracts. In FY 2014, NPS will publish three electronic newsletters that will be devoted exclusively to environmental purchasing activities at the NPS.

The USGS National Center in Reston, Virginia, held an Earth Day Expo in April 2013 to highlight energy and water efficiency and sustainable practices. Roughly 25 displays were on-hand from local businesses, utilities and organizations as well as from internal USGS offices. The Columbia Environmental Research Center, Missouri, installed an energy Kiosk in the new building that shows employees trends of electric, gas, and water use. USGS facilities management focuses on buying cleaning and replacement products from the GSA to ensure recycled content and green attributes.

4. **Use of Energy and Water Efficiency measures in Facilities Covered under EISA Section 432**

Section 432 of EISA requires that agencies complete comprehensive energy and water evaluations on its covered facilities that make up 75 percent of its facility energy use. Agencies should evaluate approximately 25 percent of their covered facilities annually so that all facilities are evaluated once every four years. Agency progress towards meeting Section 432 requirements are measured in DOE FEMP's Compliance Tracking System (CTS).

Through FY 2013, Interior evaluated 92.4 percent of its total EISA covered facilities gross square feet. Through the completion of annual energy and water evaluations, Interior bureaus have identified \$103,813,819 in Estimated Implementation Cost of Potential ECMs. This cost represents both energy conservation measures (ECMs) that have been implemented as well as ECMs that have not been implemented.

Interior bureaus continue to enter implemented project data into CTS. To date, the Total Project Implementation Costs is \$39,887,204. These projects were implemented through the use of appropriated funding – construction, building rehabilitation, and operations and maintenance funding, as well as ARRA funding, ESPCs, and UESCs. Entering implemented project data into CTS and uploading buildings benchmarked in ENERGY STAR® Portfolio Manager will be an ongoing process throughout FY 2014.

SECTION 2 – Energy Efficiency Performance Summary

A. Energy Intensity Reduction Performance Summary

1. Goal Subject Buildings

EISA established the FY 2013 energy intensity reduction goal of 24 percent relative to the FY 2003 baseline for goal subject buildings.

In FY 2013, Interior's goal subject building energy consumption was **53,481 Btu per gross square foot**. This represents a total reduction in energy consumption per gross square foot of 33.8 percent relative to the revised FY 2003 baseline.

A number of NPS and FWS facilities were impacted by Hurricane Sandy. As a result of the storm, some of these facilities were closed or minimally operational for much of FY 2013, thus reducing the energy consumed in some Goal Subject buildings.

In accordance with "Guidelines Establishing Criteria for Excluding Buildings from the Energy Performance Requirements of Section 543 of the National Energy Conservation Policy Act, as amended by the Energy Policy Act of 2005," Interior has categorized energy usage primarily from pumps, aerators, fish feeders, hatchery production, exterior lighting and security at FWS facilities, monitoring stations, and laboratory bio-waste incinerators at USGS facilities, and electricity use at the BLM's Helium Plant and the BOR's Desalination Plant and Brine Injection Plant as "assumed exclusion of structures and processes not qualified as Federal buildings." These energy processes do not have an associated building gross square footage and will significantly skew building energy usage. In addition, these processes are driven by mission and operational requirements.

2. Non-Fleet Vehicle and Equipment Fuel Use

In FY 2013, Interior used 3.3 million gallons of auto gasoline, diesel, biodiesel, off-road diesel, and propane for use in vessels, heavy equipment, standby generators, all terrain vehicles, blowers, mowers, outboard motors, and other small equipment not reported on-line via GSA's Federal Automotive Statistical Tool. A total of 160,000 gallons of aviation gasoline and jet fuel were used.

B. Renewable Energy

1. On-Site generated renewable energy

Interior is dedicated to fulfilling the renewable electricity goals of the EAct 2005 and EO 13423 by purchasing and generating electricity from renewable sources. In FY 2013, Interior used 59,248.7 MWh of renewable electricity from self-generation with on-site bonus and through renewable electricity purchases and credits. This represents 10.1 percent of Interior's total facility electricity use and exceeds the EAct 2005 goal of 7.5 percent of facility electricity use. Of the 10.1 percent, 5.2 percent represents on-site renewable energy generation including bonus; 1.9 percent represents renewable electricity purchased

through the utility company; and 2.98% percent represents the purchase of renewable energy certificates. The use of on-site renewable energy sources is encouraged if the development of the resource is economically, environmentally, and technically feasible.

Interior has implemented approximately 1,550¹ on-site renewable energy projects including stand-alone and grid-connected PV systems, solar thermal (hot water) projects, geothermal (ground source) heat pumps, incremental hydropower, and wind projects. The following new renewable energy projects were implemented or studied in FY 2013:

In FY 2013, the BIA Office of Facilities Management and Construction completed the installation of ground source heat pumps at homes for Office of Justice Services employees at **Lower Brule**, South Dakota. BIA is installing ground source heat pumps at **Riverside Indian High School**, Iowa in FY 2014. The **Havasupai Supplemental Environmental Project (SEP) Solar Photovoltaic (PV) Electrical System** is under construction at the Grand Canyon in Arizona and when completed in FY 2014 will provide a minimum of 750,000 kWh per year of AC electricity to prevent power outages experienced over the past history of this location.²

The BLM made significant ARRA investments in on site renewable energy installations (PV, Wind, Solar Domestic Hot Water) through the ESPC program and those installations are still providing ongoing renewable energy. In addition, recent design projects at **Fort Howes** in Montana include 8 kW of PV power capacity at the new fire station facility. The new **Ely Seed Warehouse** in Nevada has been designed with a solar domestic hot water system to supply its hot water needs.

The BOR **Socorro Field Division** installed solar collectors for building heating at San Marcial Yard, which reduced heating costs by 70 percent and reduced propane use, and also installed solar lighting for their flag display at the main office. The **Lower Colorado Region's Date Street Campus** completed Phase 2 of its Boulder City Solar Farm in October 2012, installing 588 PV panels, bringing the capacity to 135.24 kW with an estimated annual production of 240,050 kWh. This brings the production of the solar field up to the point where it is expected to generate more electricity than the new "green" building. The new **Upper Snake River Field Office** in Heyman, Idaho, features a geothermal heating and cooling system.

In FY 2013, the FWS replaced six mechanical windmills on water wells with solar PV power at the **Las Vegas NWR**, New Mexico, and **Deep Fork NWR**, Oklahoma. The FWS installed a solar hot water heating system for fish production at Pallid Sturgeon Propagation Building #1, **Neosho NFH**, Missouri; a 24-panel solar hot water heating system (and recirculating pumps) that produces approximately 112.1 MMBTU per year will raise the water temperature of approximately 16 of 32 fiberglass raceways used for rearing Pallid Sturgeon. The FWS constructed a 70 kW off-grid PV system at **Vieques NWR** in Puerto Rico. The system consists of 280 PV panels, each 245W or 255W, in four arrays that charge a central deep-cycle battery bank for on-demand drawdowns. FWS completed the Visitor Center and Headquarters at **Upper Mississippi River National Wildlife and Fish**

¹ One project may include multiple renewable energy components at single site, i.e., photovoltaic parking lot lights.

² This project was undertaken in connection with the settlement of an enforcement action taken by the U.S. Environmental Protection Agency for violations of RCRA, CAA, AHERA, and the SDWA.

Refuge, Wisconsin, a sustainable building that includes a 38.5 kW solar PV system, a 77 ton ground source heat pump, and a solar hot water system with a 120 square-foot solar collector. Finally, the FWS completed a headquarters energy retrofit, which included the installation of a 20 kW solar PV system at **Big Stone NWR**, Minnesota.

In FY 2013, the NPS completed the conversion of a historic barn to an artist-in-residence studio at **Marsh-Billings-Rockefeller National Historical Park**, Vermont. The project is off-grid and includes a 230 watt PV system. The park refurbished the interior with reclaimed wood found within the grounds. The solar panels provide electricity and a wood stove provides heating.

The USGS is currently undertaking a multi-site ESPC that will include renewable energy ECMs.

2. Purchased renewable energy

Interior continues to purchase energy from renewable sources. In FY 2013, Interior bureaus purchased a total of 28,552 MWh of renewable energy from utility providers and through renewable energy certificates.

BIA, BLM, and USGS purchased 17,500 MWh of renewable energy certificates generated from wood and wood residuals from the International Paper Red River Mill in Campti, Louisiana.

In FY 2013, 7.5 percent of all electricity consumed at the **Interior Complex**, in Washington, DC, was from renewable sources. OFAS purchased approximately 1,200 MWh of wind power generated in Pennsylvania.

NPS units purchased 9,852 MWh of renewable electricity from their utility providers. Most notably: **Grand Teton National Park**, Wyoming; **Zion National Park**, Utah; **North Cascades National Park**, Washington; **Mesa Verde National Park**, Colorado; and **Lincoln Home National Historic Site**, Illinois.

3. Water Conservation

EO 13514 established the FY 2013 water intensity reduction goal of 12 percent relative to the FY 2007 baseline. In FY 2013, Interior reported potable water consumption of 3,246 million gallons at a cost of \$ 15.7 million. This established Interior's FY 2013 water intensity at **54 gallons per gross square foot**, which represents a 13.9 percent reduction relative to the FY 2007 baseline.

Interior remains committed to the efficient use of non-potable water resources and will continue to make improvements in our delivery and use of water wherever feasible. Best management practices will be identified and reported in DOI's Strategic Sustainability Performance Plan. Interior bureaus briefly assessed non-potable water use and found that non-potable water is used for mission related functions. These water uses include: care and feeding of animals and wildlife including endangered species; establishment and propagation of wildlife habitats; power generation and the distribution of water as a result of water rights, contracts, or Tribal agreements; and wildland firefighting.

The BLM's audits identified need for WaterSense® equipment at the **Craig, Grand Junction, and Montrose** (Colorado) field office facilities. Spikes in commercial water usage are flagged for follow-up investigation. Improved water conservation has been emphasized as a part of ongoing Environmental Management System development throughout the various states.

In FY 2013, the BOR **Western Colorado Area Office** lined 1.5 miles of the Florida Farmers Ditch, which has resulted in a water conservation of 950 acre-feet per year; **Glen Canyon**, Arizona, replaced potable water main piping at Glen Canyon Warehouse that was badly corroded and leaking, saving approximately 200,000 gallons annually in wasted water. The **Provo Area Office**, Utah, is using xeriscaping techniques such as a drip irrigation system instead of sprinklers for approximately 40 percent of the outside area, mow strips, and rock gardens with plants and trees that use less water.

The FWS completed two buildings in FY 2013—the Headquarters Office Building at **Panther Swamp NWR**, Mississippi, and at **Yazoo NWR**, Mississippi—that have identical 2,500 gallon rainwater harvesting systems that collect and store rainwater in a cistern for flushing toilets and exterior hose use, saving approximately 40,000-60,000 gallons of water per year. The cisterns were sized to provide sufficient water during the longest recorded 50-year drought, with an automatic county water refill when the water level reaches the minimal level or manually during maintenance periods. The FWS isolated and repaired water main leaks at the **National Conservation Training Center**, West Virginia. The **Cabeza Prieta NWR**, Arizona, will convert two wildlife water tanks, which receive potable water, to a natural catchment system that will catch and store rainfall, eliminating the use of potable water at these two sites. The Refuge will continue to convert backcountry wildlife water tanks to natural catchment systems wherever possible in future years.

The NPS completed the first of three phases to restore turf and improve drainage on the **National Mall** in Washington, D.C. The first phase included gutters surrounding three Mall Lawn Panels and two large underground cisterns that will collect stormwater. Meanwhile, a below-grade pump station and a new irrigation system will distribute the collected water. When all three phases of the project are completed, the amount of potable water required for irrigating the Mall lawn panels will be reduced by approximately 7.56 million gallons per year (a savings of 67.5 percent). The collection of stormwater will also improve regional water quality by reducing the amount of flow from the Mall into the Washington area combined sewer system and keep raw sewage and pollutants out of Chesapeake Bay tributaries. **Great Sand Dune National Park and Preserve** completed a project to replace toilets and faucets in visitor facilities to reduce water usage.

USGS's **Columbia Environmental Research Center**, Missouri, discontinued the operation of an 800-gallon aquarium that had a 3 inch continuous flow through. Water was supplied from a deep well. The total cost of the well operation from March 2012 through June 2012 was \$21,222. The cost of well operation for the same period in 2013 was \$10,582, a 51 percent reduction in energy costs.

4. Metering of Electricity Use

The EPA Act of 2005 requires that all appropriate buildings be metered for electricity by the end of FY 2012. In FY 2013, Interior completed the installation of electric meters in all

appropriate buildings

Through the use of ESPC contracts, the BLM has developed an Energy Efficiency Metering (EEM) system to measure and verify specific performance of ESPC ECMs (from lighting and control retrofits, to water retrofits and renewable performance). The EEM system displays facility consumption usage as Energy Use Intensity as well as Energy Cost Intensity which quickly helps to clarify where limited energy improvement dollars can be utilized most effectively.

The BOR's **Socorro Field Division**, New Mexico, installed an electric sub-meter in the Mechanic Shop and the Lube Building to more accurately identify electric usage and implement ECMs. The **Provo Area Office**, Utah, installed an advanced meter which is capable of providing readings on an hourly basis. The electricity provider installed an advanced electric meter at the **Oklahoma City Field Office**. The **Snake River Area Office**, Idaho, and **Ephrata Field Office**, Washington, installed advanced meters to monitor energy consumption at these offices via PowerLogic ION Enterprise software.

Most of the FWS's 14 new High Performance, Sustainable Headquarters and Visitor Center Buildings built with ARRA funding have energy management control systems. All new buildings and major renovations are individually metered for all utility services (electricity, natural gas, potable water), in accordance with Implementing Instructions for Executive Order 13423.

The NPS made significant progress in FY2013 to map park utility meters to implement FBMS. The NPS distributed a Metering Tool to parks to catalog existing meters and map the buildings served by each meter. The meter inventory, network information and equivalency percentage were uploaded into FBMS.

At the USGS's **Woods Hole Coastal and Marine Geology Science Center** in Woods Hole, Massachusetts, individual building electricity meters were installed for Crawford and Gosnold buildings. The meters include an integrated graphic digital display for showing recorded total amperage per phase, kWh peak, kWh total, and monthly usage. Advanced electrical meters were installed in five of the nine buildings at the **Columbia Environmental Research Center**, Missouri. At the **National Wetlands Research Center**, Louisiana, the local utility company installed advanced metering for the entire site.

5. Federal Building Energy Efficiency Standards

Section 109 of EAct 2005 requires that, if life-cycle cost-effective, all new Federal buildings must be designed to achieve energy consumption levels 30 percent below those of the current version of the applicable ASHRAE standard or the International Energy Conservation Code. Since the beginning of FY 2007, 266 of 269 new building designs have been designed to be 30 percent more energy efficient than the relevant code or has been designed to the highest level of energy efficiency that is life cycle cost effective. Of the new building designs reported since 2007, design documentation for 3 BIA buildings has not been located to confirm that they were designed to the highest level of energy efficiency.

SECTION 3 – Implementation Highlights during FY 2013

A. HIGHLIGHTS OF FY 2013

1. **Where applicable, Agencies should provide a summary highlights of the following strategies their energy management programs employed during FY 2013:**

a) Life-Cycle Cost Analysis

Interior utilizes life-cycle cost analysis in making decisions about investments in products, services, construction, and other projects to lower costs and to reduce energy and water consumption.

Interior actively manages a portfolio of construction capital investments in order to maximize the return on investment to the taxpayer and Government at an acceptable level of risk. Effective capital planning within Interior requires improved long range planning and a disciplined budget process as the basis for managing a portfolio of assets to achieve performance goals and objectives with minimal risks, lowest life cycle costs, and greatest overall benefits to the business of the bureaus and the Department.

Interior has developed and continues to refine its approach to establishing a more consistent, structured, performance-based, integrated approach to its Construction Capital Planning Investment Control process. As Interior's portfolio-based approach matures, the Department and the bureaus will continue to improve their ability to manage risks and returns of capital assets throughout their life cycles necessary to ensure that Interior's investments are well conceived, cost-effective, and support strategic mission and business goals. The analysis of these investments is a living tool that will be continually revisited, refined and updated. It is articulated in a business case, the extent of which is commensurate with the cost and impact of the investment on the organization and mission.

b) Retrofits and Capital Improvement Projects

In FY 2013, Interior obligated \$14.5 million in facility energy and water efficiency improvements through direct obligations, and \$3 million through ESPCs, which represents a total investment of 20 percent relative to total facility energy costs. The following entries provide examples of the work being completed in DOI facilities.

BLM designed several medium scale energy retrofit projects for existing facilities BLM-wide. In Nevada, HVAC controls were revamped at the **California Trails Center**, in Utah, that HVAC system was replaced at the **Big Water Visitor Center**, and in Montana, outside air dampers were added at the **Miles City Field Office**.

The BOR completed many retrofits and capital improvement projects in FY 2013. On-demand water heaters were added at the **Alamosa Field Division**, Colorado, and **Glen Canyon**, Arizona. The BOR retrofitted lights with LED bulbs at **Provo Area Office**, Utah, the **Middle Snake Field Office**, Idaho, and the **Umatilla Field Office**, Oregon. Efficiency upgrades to HVAC systems were made at the Regional Office Administration and Annex buildings in the **Lower Colorado Region**, Nevada, and the **Socorro Field Division**, New Mexico. Power and energy efficiency upgrades were completed at numerous hydropower facilities in the **Great Plains Region**.

The FWS replaced windows at **Spring Creek NFH**, Washington; heat pumps at **Entiat NFH**, Washington; retrofitted lighting at **Montezuma NWR**, New York, and **Santa Ana NWR**, Texas; installed thermostat controls at **Uvalde NFH**, Texas; and replaced boilers at Connecticut River Coordinator Office Building, **Richard Cronin National Salmon Station**, Massachusetts, and **Clark R. Bavin National Fish and Wildlife Forensics Laboratory**, Oregon. The FWS installed duct insulation, programmable thermostats, heat pump installation, bathroom heater upgrade, and lighting retrofits at the Headquarters Building and Visitor Center Building at **Great Swamp NWR**, New Jersey; and insulated attics, repaired chillers, and upgraded metasys controls at the **National Conservation Training Center**, West Virginia.

In FY2013, the NPS completed the retrofit of 33 historic acorn lights around the parade ground in Fort Yellowstone at **Yellowstone National Park**, Wyoming, from bright white globes to LED. The lights are historic so special attention was paid to ensure updates kept with the historic and natural setting. Yellowstone also completed a retrofit of wooden bollard lights from compact fluorescent lamps to LEDs. The LED strip was custom made to fit the rustic looking and bison proof bollard. **Fort Smith National Historic Site**, Arkansas, completed lighting retrofits to the park's Visitor Center, upgrading fifty 120 to 200 watt fixtures to sixty 11 watt LED fixtures that have an expected operating life of 50,000 hours. These new lights will reduce the electricity consumption from 22,000 kwh per year to 2,000 kwh per year, equating to a 91% reduction. **Apostle Islands National Lakeshore**, Wisconsin, reduced energy consumption by replacing old equipment with more energy efficient equipment. In addition to reducing energy, the more efficient equipment is smaller, which has reduced the number and size of propane storage tanks needed by the park and has also minimized transportation risks

The OFAS continued blast window installation, which carry energy saving characteristics, and installed LED exterior lighting at C street entrance at the **Main Interior Building**, and upgraded chiller system controls at the **South Interior Building**, Washington, DC.

The USGS has implemented a project to replace a 75-horsepower submersible pump and a project to renovate a mass spectrometry room (new electrical distribution, lighting, insulation, ceiling, flooring, and HVAC) at the **Columbia Environmental Research Center**, Missouri; completed several large capital projects to reduce energy and improve the use of aquifer water and upgraded the building automation system at the **Northern Appalachian Research Laboratory (NARL)**, Pennsylvania; and upgraded compact fluorescent lighting to LED lighting in elevator lobbies at the **National Center**, Virginia.

c) Use of Performance Contracts

i) Use of Energy-Savings Performance Contracts (ESPCs)

NPS **Isle Royale National Park**, Michigan, awarded Phase II of an ESPC in FY 2013. In FY 2013, the implemented upgrades from Phase I include lighting, solar water heaters, appliance replacement, and water conservation measures with anticipated savings of 369 MMBtu annually. Phase II projects include additional lighting upgrades, solar photovoltaic, and water conservation measures.

The NPS **National Capital Region** is pursuing a region-wide ESPC with all 14 park units from the region participating. The Notice of Intent to Award was issued to Siemens on August 1, 2013 and the Investment Grade Audit will be completed by March 2014. NPS is partnering with FEMP to pursue ESPC ENABLE pilot projects at a variety of NPS facilities

nationwide. To date, the NPS has seen an immense degree of interest in the program and has as many as 18 parks across 5 regions interested in the pilot. As one of the first active participants in the program, the NPS is working hand-in-hand with FEMP to successfully launch the program and capture lessons learned for future participants.

OFAS is pursuing an ESPC to provide upgrades to the **Main Interior and South Interior Buildings**, Washington, D.C. The Notice of Opportunity was issued in August 2013. OFAS down selected to two energy service contractors who are preparing preliminary assessments.

Thirteen USGS facilities were assessed by Siemens for an ESPC. Seven USGS facilities were chosen to perform an Investment Grade Audit. Three project sites are currently being reviewed to proceed with the award. The estimated implementation cost is approximately \$11 million. The anticipated projects include: boiler and chiller plant improvements; energy management control system installation or upgrades; HVAC improvements; lighting upgrades and controls; building envelop modifications; electric motor and drive upgrades; renewable energy systems installation; water and sewer efficiency improvements; retro-commissioning; appliance and plug-load reductions.

ii) Use of Utility Energy Services Contracts (UESCs)

No Utility Energy Services Contracts were pursued in FY 2013.

iii) Use of Other Types of Contracts

The USGS's **Northern Appalachian Research Laboratory**, Pennsylvania, has a contract with the natural gas utility to buy natural gas during the summer at low rates, where it is stored and then provided to the site as needed. The NARL also has a contract with the solid waste management company to recycle many types of used products.

f) Use of ENERGY STAR® and Other Energy-Efficient Products

Interior selects, when commercially available, ENERGY STAR®, FEMP-designated, and other energy-efficient products when acquiring energy-consuming products. Energy efficient technologies include high-efficiency lighting and ballasts, exit signs, energy efficient motors, and the use of packaged heating and cooling equipment with energy efficiency ratios that meet or exceed Federal criteria for retrofitting existing buildings.

The BIA updated its Design Handbook for School Facilities, which specifies that ENERGY STAR® targets and the use of Energy Star and FEMP-designated energy efficient products are required when feasible. The BLM has rewritten green purchasing guidance documents to mandate ENERGY STAR® products as well as "green" products be purchased whenever possible. The BOR's contracts include ENERGY STAR® and other energy-efficient products, according to a June 2013 OMB data call. The FWS continued to promote all "Greening products and services," including ENERGY STAR® products. This was done through established policies and the FWS's "Green Procurement Manual: A Practical Greening Manual for the U.S. Fish & Wildlife Service." All information technology (IT) equipment purchased for the USGS is ENERGY STAR® or energy efficient.

g) Sustainable Building Design and High-Performance Buildings

Interior is striving to be a government leader by implementing sustainability policies that meet or exceed EO 13423 and 13514 requirements and integrate the five Guiding Principles into the design, construction, operations, and maintenance of Interior-owned and leased buildings. Sustainable building design principles have been incorporated into the siting, design, and construction of Interior projects. Energy managers work closely with their engineers, architects, and design offices to address energy conservation retrofits and new building designs, and ensure that buildings comply with Federal energy laws and regulations. All cost effective, energy conservation opportunities are analyzed for consistency with resource management objectives. Energy conservation efficiency standards are included as an integral part of all engineering design and construction project technical specifications.

DOI and its bureaus have a new sustainable buildings assessment strategy that considers the unique attributes and mission requirements of DOI's inventory; the strategy will allow DOI to make positive progress in conducting assessments and improve the sustainable building percentage in the Federal Real Property Report.

In FY 2013, the BOR completed the new **Upper Snake River Field Office** in Idaho, which includes energy efficient features such as a geothermal heating and cooling system, water-saving fixtures, and a passive solar design that automatically adjusts lighting levels based on the amount of natural lighting. Efficiency also extends to landscaping that will not require high maintenance or much water. The BOR Lower Colorado Region completed major renovations on its **Date Street Buildings 100 and 200**, Nevada. Renovations were designed to capture a 30 percent Energy efficiency improvement over ASHRAE 90.1-2007 as well as meet all requirements of the Guiding Principles for new construction. The BOR also completed the Material Storage Building at the **Grand Coulee Power Office**, Washington. This building is a LEED Gold facility and is on its way to an ENERGY STAR® Rating for 2014.

The FWS completed a new Visitor Center and Headquarters, **Upper Mississippi River National Wildlife & Fish Refuge**, Wisconsin. The sustainable building includes a 38.5 kW solar PV system, a 77 ton ground source heat pump, and a solar hot water system with a 120 square-foot solar collector. The Administrative Headquarters and Visitor Center, **Mammoth Spring NFH**, Arkansas, was completed in July 2013. A water source 30-ton geo-mechanical HVAC system, with spring water flowing through a heat exchange unit cools the facility in the summer and heats it in the winter. The building is constructed of sustainable materials; daylighting is abundant, with north-facing clerestories to the exhibit space; energy efficient lighting is specified throughout; inside water is conserved with low-flow plumbing including waterless urinals; and outside water conservation best management practices include Xeriscaping and any exterior irrigation with spring water from the heat exchange unit. The FWS intends to apply for a LEED Silver rating in the future.

Interior has more than 70 buildings listed in the U.S. Green Building Council's LEED Certified Project Directory:

- BIA **Baca Dlo'ay Azhi Community School**, Prewitt, New Mexico – LEED Certified
- BIA **First Mesa Elementary School**, Polacca, Arizona – LEED Certified

- BIA ***Kaibeto Boarding School***, Kaibeto, Arizona - LEED Silver
- BIA ***Kaibeto Dormitory***, Kaibeto, Arizona - LEED Silver
- BIA ***Pueblo Pintado Community School***, Pueblo Pintado, New Mexico – LEED Gold
- BIA ***Pueblo Pintado Dorm II***, Pueblo Pintado, New Mexico – LEED Silver
- BIA ***Reston Office***, Reston, Virginia - LEED Certified
- BIA ***Sanostee Day School***, Sanostee, New Mexico - Silver
- BIA ***Standing Rock Elementary School***, North Dakota – LEED Gold
- BIA ***Turtle Mountain High School***, Belcourt, North Dakota – LEED Silver
- BIA ***Tse’hootsooi’ Elementary School***, Fort Defiance, Arizona – LEED Silver
- BIA ***St. Francis Indian School Gymnasium Addition***, South Dakota – LEED Certified
- BIA ***St. Francis Indian School***, South Dakota – LEED Certified
- BLM ***Escalante Science Center***, Escalante, Utah – LEED Gold
- BLM ***Farmington District Office***, Farmington, New Mexico – LEED Gold
- BLM ***Fillmore Field Office***, Fillmore, Utah – LEED Gold
- BLM ***Gateway III Office Tower*** (leased), Salt Lake City, Utah – LEED Certified
- BLM ***Kanab Field Office***, Kanab, Utah – LEED Gold
- BLM ***Plymouth Mountain Hot Shots Facility***, Nevada – LEED Gold
- BLM ***Red Rock Canyon Visitor Center***, Las Vegas, Nevada – LEED Gold
- BLM ***Safford Field Office***, Arizona – LEED Silver
- BLM ***Sitt Field Office***, Colorado – LEED Certified
- BLM ***Santa Fe Dinosaur Trail Visitor Center***, New Mexico – LEED Gold
- BOR ***Grand Coulee Dam Materials Storage Building***, Coulee, Washington – LEED Silver
- FWS ***Administration Building, Anahuac NWR***, Anahuac, Texas – LEED Gold
- FWS ***Visitor Center, Iroquois NWR***, Besom, New York – LEED Gold
- FWS ***Neosho Hatchery Visitor Center***, Neosho, Missouri – LEED Gold
- FWS ***Nulhegan Basin Administration Building and Visitor Contact Facility***, Silvio O. Conte NFWR, Brunswick, Vermont – LEED Silver
- FWS ***Red River NWR Headquarters and Visitor Center***, Bossier City, Louisiana – LEED Silver
- FWS ***San Luis NWR Complex***, Los Banos, California – LEED Platinum
- FWS ***San Diego NWR Administrative Headquarters***, Sweetwater Marsh Unit, California – LEED Gold
- FWS ***Visitor Center, Long Island NWR Complex***, New York – LEED Silver
- FWS ***Office/Visitor Center, Vieques NWR***, Puerto Rico – LEED Certified
- NPS with the GSA ***Carl T. Curtis Midwest Regional Headquarters***, Omaha, Nebraska – LEED Gold
- NPS ***Blue Ridge Parkway Destination Center***, Asheville, North Carolina – LEED Gold
- NPS ***Denver Service Center Office Building*** (Leased) – LEED Gold
- NPS ***Denali National Park Entrance Area Visitor Center***, Denali National Park, Alaska – LEED Silver
- NPS ***Denali Emergency Services Building***, Denali National Park, Alaska – LEED Gold
- NPS with Xanterra Parks and Resorts ***Annie Creek Gift Shop***, Crater Lake National Park, Oregon – LEED Silver
- NPS ***South Rim Maintenance and Warehouse Facility***, Grand Canyon

- National Park, Arizona – LEED Certified
- NPS with Xanterra Parks and Resorts **Employee Housing**, Yellowstone National Park, Montana – LEED Certified
- NPS **Apgar Transit Center**, West Glacier, Montana – LEED Gold
- NPS **Eielson Visitor Center**, Denali National Park, Alaska – LEED Platinum
- NPS **Gettysburg National Military Park Visitor Center**, Pennsylvania – LEED Gold
- NPS **Golden Gate Recreation Area Cavallo Point (12 Buildings)**, Sausalito, California – LEED Gold
- NPS **Hawaii Volcanoes National Park Visitor Emergency Operations Center** – LEED Platinum
- NPS **Mill Complex, Forest Center and Wood Barn**, Woodstock, Vermont – LEED Platinum
- NPS **Kohm Yah-mah-nee Visitor Center**, Lassen Volcanic National Park, Redding, California - LEED Platinum
- NPS **Old Faithful Visitor Education Center**, Yellowstone National Park, Wyoming – LEED Gold
- NPS **Twin Creeks Science and Education Center**, Great Smoky Mountains National Park, Tennessee – LEED Gold
- NPS **Oconaluftee Visitor Center**, Great Smoky Mountains National Park, North Carolina – LEED Gold
- NPS **Quarry Lower Visitor Center**, Dinosaur National Monument, Colorado – LEED Gold
- NPS **Laurance S. Rockefeller Preserve Center**, Grand Teton National Park, Wyoming – LEED Platinum
- NPS **Hopewell Culture Museum Collection Facility**, Chillicothe, Ohio – LEED Gold
- NPS **Lake Mead Interagency Communication Center**, Boulder City, Nevada – LEED Gold
- NPS **West Side Visitor Center**, Pinnacles National Park, California – LEED Platinum
- NPS **Mesa Verde Visitor and Research Center**, Mesa Verde, Colorado – LEED Platinum
- NPS **Moose Headquarters Building**, Moose, Wyoming – LEED Gold
- NPS **Grand Canyon Science and Resources Management Building**, Grand Canyon, Arizona – LEED Platinum
- NPS **Paiute Apartments (8 Units)**, Grand Canyon National Park, Arizona – LEED Platinum
- NPS **Anthony C. Beilenson Visitor Center**, Santa Monica Mountains National Recreation Area, California – LEED Platinum
- NPS **Point Reyes Hostel**, Point Reyes National Seashore, California – LEED Gold
- NPS **Marina Service Building**, Cottonwood Cove, Nevada – LEED Gold
- NPS **Dormitory, Grand Portage National Monument**, Minnesota – LEED Platinum
- NPS **Headquarters Building, Voyageurs National Park**, Minnesota – LEED Silver
- NPS **Environmental Learning Center**, North Cascades National Park, Washington – LEED Silver

- NPS **Portage Lakefront**, Indiana Dunes National Lake Shore, Indiana – LEED Gold
- OFAS **Cafeteria, Main Interior Building**, Washington, DC – LEED Platinum
- OFAS **Child Care Center, Main Interior Building**, Washington, DC – LEED Platinum
- USGS **Columbia Environmental Research Center**, Columbia, Missouri – LEED Silver

Recent projects that are LEED registered or under development include:

BIA: **Ojo Encino Day School**, New Mexico; **Crown Point School**, New Mexico; **Dilcon Community School**, Arizona; **Crow Creek Tribal School**, South Dakota; **Loneman Replacement School**, South Dakota; **Pine Ridge Dormitory**, South Dakota; **Pine Ridge Justice Center**, South Dakota; **Nazlini Fire Station**, Arizona; **Riverside Academic High School and Dormitories**, Oklahoma; **Fort Totten LEC Renovation**, North Dakota; **Navajo Indian School Dormitory**, Arizona; **Tse Ho Tso Middle School**, Arizona; **Dennehotso Boarding School and Dormitory**, Arizona; **Kickapoo Nation School**, Kansas; New Dormitory, **Chemawa Indian School**, New Mexico; and **Ute Indian Tribe Justice Center**, Utah.

BLM: **Ely Seed Warehouse**, Nevada; **Boise District Radio Shop Building**, Idaho; **Desert Discovery Center**, California; **Red Rock Canyon Desert Learning Center**, Nevada; **Fort Howes Fire Station**, Montana; **New Mexico State Office**, Santa Fe, New Mexico; **Rawlins Field Office**, Rawlins, Wyoming; **Black Rock Administration Building**, Nevada; **Farmington Field Office and Warehouse**, New Mexico; **Worland Field Office**, Wyoming; and **BLM Building 50**, Denver Federal Center, Colorado.

BOR: **Animas-La Plata Project**, New Mexico; **Folsom Dam Main Administration Building**, California; **Upper Snake River Field Office**, Idaho; and **Upper Columbia Area Office**, Idaho; **Date Street Complex (Buildings 100 and 200)**, Boulder City, Nevada; and **Friant Dam Field Office Remodel**, California.

FWS: **Desert NWR Administrative Headquarters Building and Visitor Center**, Nevada; **Big Stone NWR**, Minnesota; **Tamarac NWR**, Minnesota; Administration Building, **Kealia Pond NWR**, Hawaii; **Long Island NWR Complex**, New York; **Paris Office/Visitors Center**, Tennessee NWR, Tennessee; **Commerce City Visitor and Education Center**, Rocky Mountain Arsenal NWR, Colorado; **Mammoth Spring Environmental Center**, Arkansas; **Maintenance/Fire Cache Building and Office/Visitor Center**, Texas Chenier Plains NWR, Texas; **Port Louisa NWR Headquarters**, Iowa; **Hagerman NWR Office/Visitor Center**, Texas; **Audubon NWR Administrative Office/Visitor Center**, North Dakota; **Arrowwood NWR Headquarters/Visitor Center**, North Dakota; **Alligator River / Pea Island NWR Visitor Center**, North Carolina; Visitor Center, **Detroit River International Wildlife Refuge**, Michigan; **Great River Road Interpretive Center**, Genoa NFH, Wisconsin; Bunkhouse at **Presquile NWR**, Virginia; **Corn Creek Visitor Center**, Desert NWR, Nevada; Visitor Center, **Necedah NWR**, Wisconsin; Administration/Visitor Center, **Pahraquant NWR**, Nevada; Visitor Center, **Ash Meadows NWR**, Nevada; and Administration/Visitor Center, **Ohio River Island NWR**, West Virginia.

NPS: **Beaver Meadows Visitor Center**, Colorado; **Canyon Village Master Site**, Wyoming; the **Jeff Smiths Parlor Museum Building** and the **Meyer Building**, Alaska,

Furnace Creek Visitors Center, Death Valley National Park, California; **Old Faithful Photo Shop**, Wyoming; **Fort Vancouver Visitor Center**, Washington; **Mammoth Cave Visitor Center**, Kentucky; **West Side Housing**, Pinnacles National Park, California; **Glacier Bay Huna Tribal House**, Alaska; and **Flight 93 National Memorial Phase 1B**, Pennsylvania.

USGS: **Upper Midwest Environmental Sciences Center**, Segment D, Wisconsin.

h) Energy Efficiency/Sustainable Design in Lease Provisions

All new building lease solicitations include a preference for buildings that meet the goals of the Guiding Principles, where applicable, in the selection criteria for acquiring leased buildings. Build-to-suit lease solicitations incorporate criteria for sustainable design and development, energy efficiency, and verification of building performance in accordance with the Guiding Principles.

The NPS includes sustainability initiatives in concession contracts. Through this process, parks can identify the most relevant and highest priority sustainability goals for concessioners to integrate into operations. Additionally, the process allows innovative programs and products to be offered by concessioners on how to address unique environmental management issues at parks.

i) Distributed Generation, including use on on-site renewable energy resources and combined cooling, heating, and power systems

Interior continues to pursue projects that self-generate energy using renewable sources (such as photovoltaics or wind turbines) or renewable energy thermal projects (such as solar thermal, biomass, or geothermal) where life cycle cost effective.

The following are examples of distributed generation and off-grid generation that were implemented in FY 2013:

FWS installed a 16 kW in-line microhydro turbine at **Craig Brook NFH**, Maine, FY2013.

The USGS has partnered with GSA to install an innovative micro chiller to provide cooling to a laboratory in building 95, **National Water Quality Laboratory**, Denver, Colorado. The micro chiller will integrate with a solar hot water heater, which should reduce the electricity required to run the fan coil unit by 80 percent. The reduced pumps and compact size should result in reduced operating and maintenance costs. If the project is successful, the micro chiller has the capability of linear scaling and could replace existing chillers resulting in significant cost savings.