

Department of the Interior Receives Three Federal Energy and Water Management Awards

The Department of the Interior has won three Federal Energy and Water Management Awards for FY 2014. The awards, sponsored by the Department of Energy's Federal Energy Management Program (FEMP), recognize innovative energy- and water-saving projects, programs, and individuals across the Federal Government.

The three award winners build on the Department's strong tradition in this competition and exemplify the incredible efforts being undertaken every day throughout the bureaus to make our operations sustainable while carrying out our vital missions. Moreover, the winning projects and programs reduce harmful greenhouse gas emissions, conserve water, bolster local economies ravaged by drought, and help to strengthen the nation's energy security by increasing its use of renewable energy. The award winners also showcase sustainable features and practices to visitors that come to see the natural beauty of America's great outdoors.

The winning teams will be recognized at a December 9th ceremony at the National Archives in Washington, DC.

The Department's three award recipients are as follows:

U.S. Bureau of Reclamation –

The Bureau of Reclamation's (BOR) Oklahoma-Texas Area Office (OTAO) received a Program Award for its Visualizing Water Savings at Mountain Park Project. Working with the Mountain Park Master Conservancy District (District), OTAO developed a reservoir drought forecast model to estimate future water availability under continuing drought conditions. Use of this model resulted in an increased understanding of the significance of the ongoing drought, and led to implementation of significant water conservation measures.



Drought Conditions in Oklahoma. Credit: BOR

BOR's Tom Steed Reservoir in southwest Oklahoma serves as the primary water supply for the cities of Altus, Snyder, and Frederick, and for the expanding Altus Air Force Base. This region has experienced extreme drought conditions for several years, resulting in cotton crop losses and an estimated \$250 million direct impact on the local economy per year. As a result of creating this drought forecast model and generating public awareness about the reservoir outlook, all three cities have created water conservation plans and implemented water conservation

measures. These water conservation efforts have allowed the District to realize a 37% reduction in water deliveries (approximately 1.14 billion gallons) from Tom Steed Reservoir compared to 2012 and a savings of approximately \$40,000 (nearly 600,000 kilowatt-hours (kWh)) of energy, which has eliminated the emission of 450 metric tons of CO₂ equivalent (MTCO_{2e}), the average annual emissions of 95 automobiles.



Headquarters and Visitor Center at Upper Mississippi River National Wildlife and Fish Refuge - La Crosse District. Credit: FWS

U.S. Fish and Wildlife Service – The Headquarters and Visitor Center at the Upper Mississippi River National Wildlife and Fish Refuge - La Crosse District, Wisconsin received a Project Award. Each aspect of the Leadership in Energy and Environmental Design (LEED) Silver-certified Center’s design, construction, and operation exemplifies the sustainability goals of Executive Order 13514. The Center uses multiple

cost-effective, innovative strategies to reduce energy and water consumption,

including a standing-seam metal “cool” roof, operable low-e insulating windows, occupancy sensors, LED lighting, in-floor radiant heating, low-flow toilets and fixtures, and a rainwater harvesting and containment system, among other features. The facility was built using environmentally friendly, regionally extracted and manufactured materials. Outdoors, water-efficient landscaping with native plant species avoids chemical use and eliminates irrigation, while storm water containment and drainage swales boost water conservation. Renewable energy is a vital contributor to the building’s ultra-low carbon footprint. Renewable thermal energy via a horizontal, closed-loop geothermal heat pump system provides 74.86 tons of heating, ventilation, and air conditioning. Three solar collectors with 96 square-feet of collector area provide hot water for the building. Finally, a grid-tied, net-metered, 156-panel, roof mounted, 35.88 kilowatt solar photovoltaic (PV) system produces renewable electric power. All of these building envelope and systems technologies combine to achieve a remarkable energy performance of at least 44% better than an average building. The total energy cost saved from solar PV production in 2013 was \$4,702; meanwhile, 29,590 gallons of potable water are saved annually, for a cost savings of \$1,480 per year. All told, the project avoids 85.5 MTCO_{2e} greenhouse gas emissions per year, equivalent to the annual emissions of 18 passenger vehicles.

U.S. Geological Survey – The Great Lakes Science Center (GLSC) in Ann Arbor, Michigan received a Project Award for a wet laboratory upgrade. Prior to the wet lab upgrade, the existing lab process water was obtained from a well. The hard well water caused minerals to build up in the piping and equipment, causing flow restrictions and requiring pipe replacement. Almost all the original equipment was past its useful life and significant maintenance was required to maintain and operate the system. By FY 2013, the wet lab was becoming inoperable due to equipment failures and plugged lines. The project upgraded the distribution and discharge systems, changed the water supply from well water to city water, installed new PVC piping to reduce the risk of clogging, and drastically lowered the need for pumping energy. The system now operates as a re-circulating water system rather than a once through operation, conserving roughly 52.6 million gallons per year that were previously drawn from the local aquifer. Water is no longer discharged to the storm water system, eliminating the need for a \$9,000 annual discharge permit. The use of a re-circulating system also reduced the operation of the facility’s chillers, saving 350,000 kWh of electricity per year and preventing the emission of 241 MTCO_{2e}, the annual emissions of 51 passenger vehicles. In FY 2013, the GLSC electricity consumption was 32% less than FY 2011 when the wet lab was last in full operation. Lastly, the new system provides at least 50% more capacity than the old, enabling the researchers to better fulfill their mission.



Wet Lab Water Flow, USGS Great Lakes Science Center. Credit: USGS.