Energy and Environmental Quarterly

U.S. Department of Commerce; Office of Facilities and Environmental Quality; Office of Sustainable Energy and Environmental Programs
Volume 7, Issue 3

DOC Awards First Two Performance-Based Energy Savings Contracts

In late May 2015 the Department of Commerce (DOC) awarded its first two performance-based energy savings contracts towards the President's Performance Contracting Challenge, which will save the department $213,000 in utilities and operations and maintenance costs in their first year. The Census Bureau's National Processing Center (NPC) in Jeffersonville, Indiana is partnering with Ameresco Government Federal Solutions, Inc., an energy services provider specializing in renewable energy and energy efficiency, to reduce water consumption by 13.4 percent and energy consumption 6.3 percent annually. The National Oce-

anic and Atmospheric Administration's (NOAA) Atlantic Oceanographic and Meteorological Laboratory (AOML) in Miami, Florida is working with Florida Power & Light Co., an electric utility provider, to lower its total energy consumption by 24 percent annually.

The majority of cost savings at the Census Bureau will come from upgraded energy efficient lighting, installation of occupancy sensors, and re-commissioning of water fixtures. NPC will also be insulating steam lines, replacing failed steam traps, and fine-tuning scheduled nighttime and weekend setbacks on programmable thermostats and other heating, ventilation, and air conditioning (HVAC) controls. The first-year savings of over $125,000 are expected to grow by approximately $3,000 each year.

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NIST: Energy Savings Performance Contract Protects Environment-and Saves Taxpayers up to $7 million

On June 30, 2015, the Census Bureau's National Processing Center in Jeffersonville, Indiana awarded a $120 million Energy Savings Performance Contract (ESPC) to Johnson Controls Government Solutions, a firm that helps the federal government maximize building performance in technology, energy, and security.

The contract was awarded by Census on behalf of the National Institute of Standards and Technology (NIST), located in Gaithersburg, Maryland. The contract will decrease NIST's environmental impact, and savings on NIST's utility bills will range from $4.1 to $6.7 million annually over the 25-year life of the contract. It will also earn one-time utility rebates of up to $3.2 million when finished and operating.
(Article continued on page 3)

In This Edition

Meet DOC Sustainability Community Members: Derrick Barnes and Jimia Harris

Please welcome the newest members of the Office of Sustainable Energy and Environmental Programs (OSEEP), Mr. Derrick E. Barnes II and Ms. Jimia Harris. Barnes and Harris were recently hired through the Pathways for Students and Recent Graduates Program to operate the Herbert C. Hoover Building (HCHB) Green Store. They will jointly be responsible for the Green Store's inventory management, communication strategy, public auctions, logistics, and other related operational functions.

Since joining the OSEEP staff, Mr. Barnes contributions through new ideas to improve the Green Store operation has already made a positive impact. Mr. Barnes assisted with HCHB's Earth Day event last April and he is now active on other Go Green initiatives and recycling efforts. Mr. Barnes majored in Philosophy and Sociology at Frostburg State University. In his early career he worked as a sales associate for Petco and Macys as a receiving and processing associate. In addition to joining the OSEEP staff, Mr. Barnes spends his spare time enjoying writing poetry, spending time with his family, reading, exercising, photography, inquiring into the nature of relationships, and keeping to God's guidance.

Ms. Harris is the most recent addition to OSEEP and the Green Store. A recent graduate of Trinity University, she majored in communication with a concentration in journalism. She has actively participated as a medium in the interaction between employees and supplies. She mentioned that this view has helped her to appreciate the various contributions of people within different offices of the Department and the importance of recycling efforts in helping the Green Store thrive. Early in her career, she actively wrote articles and updated her own blog site. Additionally, she worked with members of the Public Access Corporation of DC (DCTV) to produce television shows which aired on cable channels and the YouTube visual media site. Ms. Harris is interested in pursuing a career in the field of broadcast journalism. When she is not working in the Green Store, Ms. Harris is adhering to her spiritual journey, spending time with family; working on ideas for production projects; enjoying an action-packed, comedic movie; cooking; writing; critiquing social issues in the news; or enjoying a live musical performance.

Both Mr. Barnes and Ms. Harris hope to use the Green Store to make a positive impact within the Department and have plans to expand operations even further.

Turning Waste To Energy

Turning trash into treasure is a familiar concept to artists, decorators, collectors, and even small children. With a new coat of paint and some elbow grease, old and broken objects can gain new life. Reusing and repurposing disposable items is a small part of the sustainability movement, yet it is an admirable effort to keep what is otherwise deemed as trash out of landfills. Garbage continues to pile up around the earth, polluting water tables, causing serious harm to marine life in the oceans, and filling up acreage in communities that could otherwise be used for more welcomed development. There is a solution to lessen the impact garbage has on the planet while offering a win-win scenario for some local communities. Waste-to-energy (WTE or W2E) facilities offer a practical, renewable energy generation solution with the potential for large-scale impact on waste disposal and energy shortage, yet many people are unaware of this technology. Known as incinerators in many places, WTE facilities divert garbage from landfills and use this "trash" as a fuel to create the "treasure" of abundant, "renewable" and very profitable electricity generation.

WTE facilities follow a simple process to convert trash into electricity. Municipal Solid Waste (MSW) is gathered from nearby homes and businesses or dropped off by nearby construction companies. Recyclable and hazardous materials (on many sites) are removed from the garbage, leaving behind the MSW that will be sent to the furnaces. The waste is then burned to make steam energy that, in turn, generates electricity. The small amount of non-hazardous ash that remains in the furnaces at the end of each day, its mass now a fraction of the original MSW, is loaded up onto a covered truck and is sent to a nearby landfill to be buried or further used in creating new construction materials. The process is simple and well regulated, yet there are still only 86 plants in the United States that convert waste into electricity.

Although the plants have not yet skyrocketed in popularity in the U.S., WTE efforts are bearing fruit in other parts of the world. Denmark is integrating plants into upscale professional neighborhoods. Sweden's program is so successful that it has imported trash from European sources to keep the electricity flowing. And Japan has long lead Asia in the development of W2E technologies and facilities. But according to the Environmental Protection Agency (EPA) the delay in widespread implementation in the U.S. stems from both environmental and financial worries from activist groups, the government, communities, and other affected stakeholders.

Environmental activists, in large part opposed to WTE plants, have expressed legitimate concerns about air pollution from emissions the plants release, citing concerns mainly about mercury and other hazardous substances that come from the incinerators' smokestacks, as well as a potential drop in recycling rates. But a study of modern plants real-world experience can soothe those fears. Technological advances in air scrubbers and filtering systems continue to reduce harmful pollutants from incinerators that already meet

(*Article continued on page 3)*

(NIST: Energy Savings Contract-Cont'd)

This is the 5th largest contract of its kind awarded by any civilian agency since President Obama launched the Performance Contracting Challenge in 2011.

The main feature of the energy conservation effort will be the construction of a Combined Heat and Power (CHP) plant, a 4,100 square foot building addition to the NIST campus's Central Utility Plant which will save NIST $3.9 million alone. With a natural gas fired turbine, the CHP will offset 40% of the campus's electric load. This amount of generated electricity will cost less than if NIST were to purchase it from the local electric company. The CHP will recover high temperature turbine exhaust heat that will meet almost 75% of the campus's steam load.

Second, the contract plans to increase the campus' free cooling capacity with the replacement of the two oldest chillers with dual compressor chillers in the Central Utility Plant. These new chillers will also rid the plant of an ozone depleting substance called R-22 refrigerant, beating the scheduled phase out of R-22 by three years.

When all of the ESPC work is completed, the environmental impact will have the same effect of reducing CO_2emissions equivalent to removing 9,000 passenger vehicles from the road, or 100,000 barrels of oil being consumed, or the energy used by 4,000 homes in one year.

Taxpayers have limited risk with an ESPC because it will be completely financed with zero upfront funding from the federal government. The contract guarantees annual savings both in terms of energy consumption reductions and corresponding utility bill reductions. The contractor will be paid after all planned work has been satisfactorily completed and fully commissioned—estimated around January 2018.

High-Efficiency Magnetic Bearing Oil-free Chiller

(Waste to Energy-Cont'd)

or exceed EPA standards, for example. And studies show that recycling rates traditionally *increase* in areas served by WTE plants. Some government officials who grant permits and other support mechanisms, and potential business partners argue that large start-up costs require a significant upfront investment that takes time to show a return. The New York Times, however, reports that a number of states and the federal government recognize MSW as a renewable source of energy that are "in many cases eligible for subsidies" and a boon to communities.

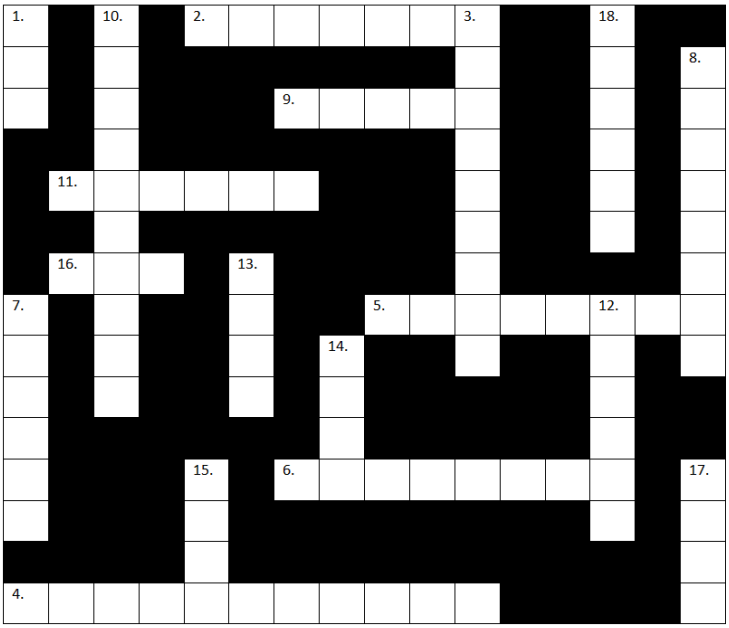
Overall, the strongest arguments that favor the construction and continued operation of WTE facilities are that they reduce the nation's dependence on fossil fuels (mainly coal and natural gas) by generating large amounts of electricity from a "renewable" source and lower the rate of landfill use (at a time when landfill sites are filling quickly and becoming harder to identify), without adding to greenhouse gas emissions. WTE businesses appear to be worthwhile ventures that offer multiple environmental solutions to communities while still remaining profitable – a rare model that alleviates multiple areas of concern to its stakeholders. While many people are still unaware of this renewable source of electricity, arguments for investing in WTE more heavily are gaining traction in the U.S. The number of WTE facilities could possibly expand in the near future as fuel sources grow more expensive, more polluting, and harder to extract from the earth and as people more increasingly demand cleaner sources of energy.

If you are interested seeing a waste to energy facility, Covanta, located in Alexandria, Virginia operates a plant and often will arrange for tours.

We Want Your Articles in the E&E

If you are a Department of Commerce employee and you would like to contribute an article to this newsletter, please forward your article and contact information to gogreen@doc.gov.

Environmental Crossword Puzzle



Down

1. Found in drums.
3. Program enacted to address abandoned hazardous waste sites in the U.S.
7. Commonly known as the Superfund.
8. Waste that is dangerous or potentially harmful to our health or the environment.
10. Refers to conditions in which a regulated entity (usually an owner or operator of an injection well) has complied with the regulations governing underground injection.
12. Power derived from the utilization of physical or chemical resources, especially to provide light and heat or to work machines.
13. A fungus that grows in the form of multicellular filaments called hyphae.
14. Enacted in 1976, is the principal federal law in the United States governing the disposal of solid waste and hazardous waste.
15. A law that gives you the right to access information from the federal government.
17. An environmental law that established a U.S. national policy promoting the enhancement of the environment.
18. An authorization, license, or equivalent control document issued by EPA or a State

Across

2. EPA considers these pests a public health issue.
4. An approach to serving human needs by using/ reusing resources
5. A form prepared by all generators who transport, or offer for transport, hazardous waste for off-site treatment, recycling, storage, or disposal.
6. EPA acts as a _____ to ensure the industries meet legal requirement to control pollution.
9. A Department of Commerce headquarters environmental office that collects data for OMB scorecard.
11. A semisolid residue from air or water treatment processes.
16. A statute that form the legal basis for the programs of EPA.

Answers will be published in the November edition of the E&E Quarterly

(DOC Performance-Based Energy Contracting-Cont'd)

NOAA's AOML will be replacing its 30-year-old chiller with a new high-efficiency magnetic bearing oil-free chiller, implementing variable chilled water pumping, decommissioning its failing thermal energy storage system, and upgrading its HVAC control system. The upgraded controls will allow for nighttime and weekend setbacks, as well as a detailed trending data collection cycle to closely monitor HVAC energy consumption and other metrics. The upgrades are expected to save AOML $53,000 in energy bills and $35,000 in avoided operations and maintenance annually in the first five years after installation. Energy savings are projected to grow by $2,000 per year.

The Census Bureau will achieve its savings through an energy savings performance contract (ESPC), in which the contractor installs energy and water savings upgrades at no upfront cost to the government and guarantees the cost savings over a multi -year contract term. The government pays the contractor out of energy and associated cost savings that accrue over time. This is the Census Bureau's first ever ESPC.

NOAA's AOML entered into a similar multi-year contract called a utility energy service contract (UESC) with Florida Power & Light Co. A UESC is similar to an ESPC in that construction is completed at no upfront cost to the government, the contractor provides a performance assurance for the upgrades, and the contractor is paid in installments out of the annual cost savings. One key difference is that a UESC is entered into with one's own utility provider, whereas an ESPC is entered into with an energy services company.

Both ESPCs and UESCs are specifically authorized by statue and can be scored annually in an agency's budget submission to the President's Office of Management and Budget (as opposed to the entire contract being scored in the first year). President Obama recently challenged federal agencies to award a combined total of $4 billion in performance-based energy savings contracts, including ESPCs and UESCs, by December 2016. The Department of Commerce committed to awarding $12 million, and these two contracts represent our first steps towards this goal.