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Baltimore City targets energy use reductions across its portfolio

The City of Baltimore is home to more than 622,000 people. As Maryland's largest city, it is responsible for the energy costs at more than 1,100 facilities, ranging from the typical—city hall, courthouse, schools, firehouses, libraries and recreation centers—to the less so, such as substations, museums, parking garages, a convention center and even a zoo!

The enormous task of evaluating the efficiency of the lights, heating and cooling in city buildings and much more falls to the employees of the Department of Public Works' Office of Sustainable Energy (OSE). Since its 2006 inception, the OSE has aggressively sought to improve energy efficiency across its portfolio of facilities and equipment, holding the belief that the best way to save energy is not to use it.

In fiscal year 2014, the Baltimore City government spent more than $54 million on energy, with electricity costs accounting for 65% of the energy bill. That's more than the budget of some city agencies. "Cost savings is a big motivator for us," says OSE energy projects manager Mark Benson. "We'd rather the money be spent supporting the missions of our agencies."

"We all have to make do with tight dollars. These programs make sense. They help you spend money on your mission and programming, rather than electricity."

— Mark Benson,
energy projects manager,
Baltimore City Office of
Sustainable Energy

An early adopter, Baltimore was one of the first city governments in Maryland to participate in the BGE Smart Energy Savers Program®. Baltimore City teamed up with BGE to take advantage of technical assistance and financial incentives to help pay for energy efficiency upgrades in many of its facilities. To date, the city has received more than $2.5 million in incentives that helped offset the cost of energy efficiency projects across the city.

The opportunity

In 2008, the Baltimore Office of Sustainability developed a sustainability plan for the city, with an overall goal to reduce the city's energy use by 15% by 2015, which mirrored the EmPOWER Maryland initiative's statewide goal. One area of the plan focuses on resource conservation and includes reducing energy use in city buildings as a key strategy.

With the plan in hand, city officials began looking into ways to improve energy efficiency across Baltimore's massive portfolio of facilities of various types and ages, ranging from recreation centers to office buildings to parking garages. They decided to focus on performance contracting in large downtown buildings first and hired energy service companies to perform audits to identify and install improvements in targeted buildings.

These efforts are driving progress in reducing energy use citywide. "We've ramped up over the last few years," Benson says. "Now we're at a place where we're a leader in this work for cities of our size and age."

The BGE solution

In 2014, with the help of incentives from the BGE Smart Energy Savers Program, Baltimore City completed energy upgrades in recreation centers, libraries, charter schools and police stations in just 3 months. Projects included switching to more efficient lights, upgrading old heating and air conditioning systems and replacing refrigerators with high-efficiency models.

The OSE's first priority was to upgrade the lighting in buildings operated by the Department of Recreation and Parks, specifically recreation centers, some of which were located in low- to moderate-income areas that had not received adequate attention over the years. The new lighting not only provides financial savings but also creates a more comfortable atmosphere for the families and city workers who use the facilities. Visitors to a city-operated ice rink applauded the more even lighting as a marked improvement over the previous condition of having light and dark areas on the ice. At a police warehouse where half the lighting was burned out, employees were very appreciative of the upgrade to more consistent and brighter lighting.

At the Fred B. Leidig Recreation Center, Director Jessica E. Cook-Thomas says that "the hallway and one room were really dark before. It's so much brighter. I love it! Also, there is a great benefit in the more efficient lighting, not just in cost-effectiveness, but also the community feels safer entering the building."

Another key project was upgrading the Baltimore Convention Center. This downtown facility with 1.2 million square feet of space is a cornerstone of the city's hospitality and tourism industry. Through the BGE program, the convention center received more than $1 million toward energy conservation measures, including sophisticated lighting controls, kitchen exhaust hood controls with variable frequency drives and upgrades to the heating and air conditioning system. The building's upgrades are projected to save the city approximately $300,000 in energy costs and 3,000,000 kWh annually.

The benefits

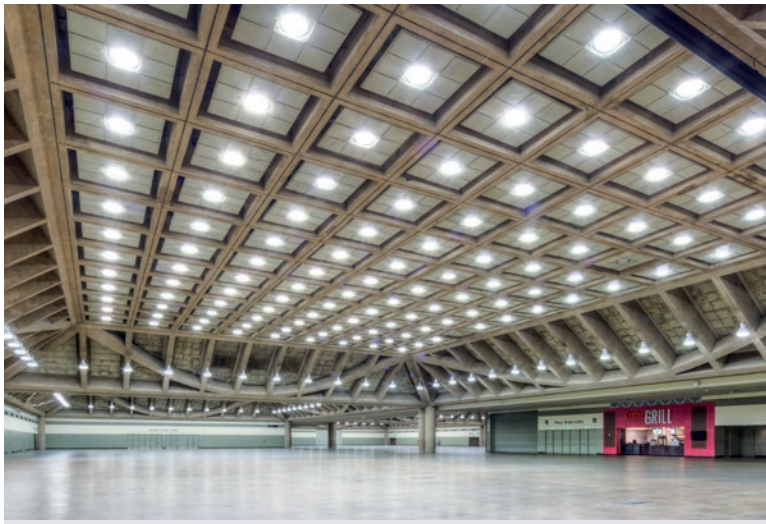
By installing energy-saving technologies and replacing outdated equipment with high-efficiency models, Baltimore City's efficiency projects are reducing wasted energy. To date, more than 70% of the energy savings have come from the lighting retrofits alone. The city is also saving about 12% on energy costs by replacing or optimizing the performance of heating, ventilation and air conditioning and other mechanical systems.

One of the many downsides of tight government budgets is deferred maintenance. In some of these facilities, ballasts had stopped working, or spent lamps had been replaced with different color lamps, which led to uneven lighting. The retrofits deliver much more uniform lighting, and all the fixtures are once again working. Plus, the longer-lasting lamps won't need to be changed as often, helping minimize maintenance costs as well.

Occupants have been wowed by the improvements, particularly in the lighting quality. "We had to get the carpet cleaned after the lights were fixed," jokes Rebecca Hass, former assistant branch manager at the Hamilton branch of the Enoch Pratt Free Library, referring to how much brighter the room was after the lighting upgrade.

Looking ahead

The city also plans to move forward on combined heat and power (CHP) projects, which offer a clean and efficient approach to generating power and thermal energy from a single on-site fuel source. These systems capture thermal energy from hot exhaust gases for use in space heating, cooling, domestic hot water, dehumidification and process heating. BGE's CHP Program provides incentives up to $2.5 million per project.



Goals of the Office of Sustainable Energy

- Reduce city government electric energy use 30% by 2022 from 2006 levels.
- Build up city government's renewable energy capacity to 15 megawatts by 2022.
- Reduce greenhouse gas emissions from government operations, facilities and fleet by 15% by 2020 from 2010 levels.
- Secure resilient energy sources for the city's critical facilities.
- Foster energy efficiency and renewable energy use among the city's non-profits and small businesses.

Baltimore was awarded $5 million by the Maryland Public Service Commission's Customer Investment Fund for its CHP projects, and city officials plan to apply for incentives from BGE's CHP Program as well. The city is targeting facilities with high energy use like water pumping and treatment plants under this program. Plans for a 600-kilowatt CHP system at Baltimore's Ashburton Filtration Plant will provide an estimated $1.8 million in net savings over 15 years. The CHP system will not only reduce annual energy costs but also improve the city's ability to maintain the water supply during emergencies.

As part of her 10-year plan, Mayor Stephanie Rawlings-Blake is working to bring 10,000 new families into the city. Saving energy allows for more money to invest in the infrastructure to support this growth.

"We choose projects that are cost effective and use proven technologies," says Anne Draddy, program manager at OSE. "We also identify the most capital-efficient and effective financing methods, which include use of the rebates available through BGE's Smart Energy Savers Program. We're saving the city—and ultimately residents—serious money."

To other municipalities considering whether to do energy efficiency projects, Benson offers this advice: "Educate yourselves. Talk to your BGE account representative about the kinds of projects that might be right for your facilities and for help clarifying the savings you could achieve. Then go for the low-hanging fruit. Change out your lighting first. That's your biggest bang for the buck. Just do it! Do it now. You can save money."

Savings at a glance

The City of Baltimore used financial incentives from BGE's Smart Energy Savers Program to make energy efficiency upgrades in more than 125 facilities across the city.

BGE program:
Energy Solutions for Business, Small Business Energy Solutions

Total number of projects:
128

Incentives paid:
$2,501,678

Electricity savings:
9,868,859 kWh/year

Cost savings:
$986,885/year

The BGE Energy Solutions for Business Program provides financial incentives and technical assistance to help businesses and non-profit organizations maximize energy efficiency and reduce costs. Financial incentives cover up to 50% of the cost for retrofit projects and up to 75% of the cost difference between standard- and high-efficiency equipment for new construction and replacement of end-of-life equipment. For more information, visit **BGESmartEnergy.com**.

EmPOWER Maryland programs are funded by a charge on your energy bill. EmPOWER programs can help you reduce your energy consumption and save you money. To learn more about EmPOWER and how you can participate, go to **BGESmartEnergy.com**.

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