Customer Spotlight:
Education

BGE SMARTENERGY savers PROGRAM®

Harford County Public Schools Scores an "A" in Efficiency

Located about 30 miles northeast of Baltimore, Harford County Public Schools (HCPS) is the educational home for more than 38,000 students in grades K–12. School officials there believe that providing students with a 21st century education requires a 21st century learning environment. Perhaps that's why the sustainability of its facilities ranks among HCPS's core values.

Leading its sustainability initiatives is Andrew Cassilly. As resource conservation manager, Cassilly works to ensure each school uses resources wisely and minimizes operating costs. With the help of BGE's Smart Energy Savers Program®, HCPS completed upgrades to improve energy efficiency in 42 schools, a step that will cut energy use dramatically and save an estimated $1.2 million annually.

"By reducing our environmental impacts with the use of new technology, we are turning our school buildings themselves into a teaching tool."

—Andrew Cassilly,
Resource Conservation Manager,
Harford County Public Schools

The Opportunity

HCPS operates elementary, middle and high schools, as well as special and alternative education centers. Beyond the school day, these facilities also serve as community centers. The Boy Scouts, Girl Scouts, Civil Air Patrol, church groups and other organizations sign out rooms after hours and on weekends for their events. With so many buildings, many with outdated and inefficient equipment, the opportunity for improving energy efficiency was substantial.

"Our first goal was to replace T12s," Cassilly says, referring to the outdated fluorescent lamps being phased out in favor of more efficient T8s and T5s. "Once we learned about BGE's Energy Solutions for Business Program and the variety of incentives available, it became easier and more cost-effective to roll out our plans across the school system." In fact, the T12s were just the beginning.

The BGE Solution

After reviewing its portfolio, HCPS identified opportunities to upgrade the old and inefficient lighting; heating, ventilation, and air conditioning (HVAC) systems; and kitchen equipment in most of the schools. BGE's Energy Solutions for Business Program made the process easy, quick and affordable, with predetermined prescriptive incentives for the lighting and kitchen equipment.

School by school, HCPS replaced the old T12s in classrooms, offices and hallways with energy-efficient T8 and T5 systems, helping lower lighting-related energy use by up to 50%. "We went gung-ho after this low-hanging fruit," Cassilly says. Fallston Middle School, for example, was among those with the most antiquated lighting. "What really jogged in my brain is that the combination of available incentives and ongoing energy savings brought the payback down to under a year."

Savings at a Glance

Harford County Public Schools upgraded the lighting and HVAC systems in 42 of its schools to reduce energy costs and improve the learning environment for students and teachers.

BGE Programs:	**BGE Energy Solutions for Business, Building Tune-up**
Number of BGE rebate applications:	**150+**
Energy savings:	**10,158,033 kWh/year**
Cost savings:	**$1,218,964/year**
Incentives paid:	**$2,479,306**

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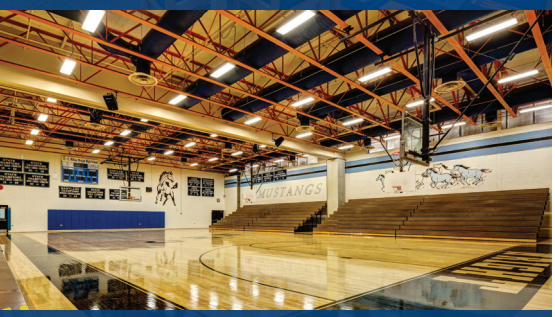
Hallways and the lobby in this school were outfitted with new lighting and motion sensors.

The new LEDs above this walkway are so bright HCPS could reduce the number of fixtures needed.

LED lighting in this theater allows for dimming and greatly reduces maintenance costs.

Sensors in this elementary school library enable lighting by zones for use by small groups.



High-efficiency T5 fluorescent lights brighten up this gymnasium.

Installation of new LED exterior wall pack lighting and motion sensors not only helped reduce energy use but also minimizes light pollution, a boon to neighbors and student stargazers at HCPS's environmental education center. Plus, says Christine Langrehr, principal at Forest Lakes Elementary School, "Parents [have] remarked on the additional lighting outside the school with regard to improved safety and security."

Next, kitchen and refrigeration equipment in cafeterias and dining areas was replaced with high-efficiency models. HCPS also added occupancy controls to beverage and snack vending machines, a measure that will reduce related energy consumption by about 10%.

HVAC systems were another target for upgrades. Cassilly's team installed variable frequency drives (VFDs) on the HVAC equipment in numerous schools. VFDs control the frequency and speed at which motors operate, allowing energy managers to adjust the motor speed based on occupancy. HCPS also installed temperature controls in classrooms, offices and hallways.

The school system took advantage of BGE's custom program to install a chilled water system. HCPS project managers and engineers worked with BGE's program staff to complete the proper calculations and submit documentation to obtain approval for the project. The effort helped maximize the incentive dollars, which covered 50% of the costs.

In addition, HCPS is leveraging the technical services element of the program to incorporate energy efficiency into the design for a new building at Magnolia Middle School. Working with an approved technical services provider, the school system is incorporating high-performance lighting and occupancy sensors, as well as a high-efficiency HVAC system, into the plans.

The Benefits

"We're taking money traditionally used to operate our buildings and diverting it to programs that serve the student population," Cassilly says. Plus, he adds, "By upgrading lighting and our HVAC systems, we're creating a much better learning environment."

The new lighting is perhaps the most noticeable. Principal Langrehr says the new lighting eliminated the buzzing sound associated with the older magnetic ballast lighting. Even the kids noticed a difference: The morning after the lighting upgrade at one school, a student walked inside and asked, "Did we get a new floor?"

The new LED lighting lasts much longer, meaning fewer ladder ascents to change spent bulbs. This is especially important for those hard-to-reach fixtures in stairwells. What's more, the LEDs are sealed, so insects are securely locked out.

The school system's carbon footprint and overall sustainability benefit as well. "We strive to practice what we teach," Cassilly says. "Teachers are now using our energy reduction calculations in their lessons on energy efficiency and alternative energy."

Up next, HCPS plans to complete building tune-ups in multiple schools. "The incentives," Cassilly adds, "enable us to really stretch our dollars and go after more projects."

The BGE Energy Solutions for Business Program provides financial incentives and technical assistance to help businesses and nonprofit 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.**

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