



National Aquarium Makes a Splash with Energy Upgrades

Keeping the largest tourist attraction in the state of Maryland running smoothly is a monumental task. When that job also includes protecting the welfare of close to 20,000 animals and accommodating 1.3 million visitors a year, it is no surprise that the National Aquarium is always looking to improve its facilities. With the help of the BGE Smart Energy Savers Program®, the aquarium upgraded much of its interior lighting and installed energy-saving water pump drives to regulate the water levels for the Pier 4 Dolphin Discovery exhibit.

The Opportunity

The National Aquarium spans three buildings and nearly 350,000 square feet of space along Baltimore’s Inner Harbor, where more than 700 species of fish, birds, amphibians, reptiles and marine mammals live in award-winning habitats. In line with its commitment to conservation and environmental preservation, the aquarium’s facilities team strives to minimize energy usage.

Tom Amrein, director of facilities, was frustrated by what he saw on his daily walkthroughs: light bulbs that needed replacing and pumps that needed full-time monitoring. “I kept telling my lighting vendor that we were just wasting time always replacing bulbs, only for more to be out the following day,” Amrein says. “So when he told me about the incentives BGE’s Smart Energy Savers Program was offering to switch to LEDs, I knew it would be an immense improvement.”

“And,” adds Jacqueline Bershada, the aquarium’s vice president of capital planning and facilities, “with more than \$200,000 in incentives to reduce the cost of the upgrades, the decision to move forward was an easy one.”

“With \$200,000 in rebates,
 our energy upgrades made a
 big splash.”

—Jacqueline Bershada, Vice President,
 Capital Planning and Facilities,
 National Aquarium

Savings at a Glance

The National Aquarium in Baltimore used incentives to install energy-efficient light fixtures, LED exit signs and variable frequency water pump drives in its Inner Harbor facility.

BGE program:	BGE Energy Solutions for Business
Energy savings:	3,008 megawatt hours (MWh)/year or 15% annual MWh savings
Incentives paid:	\$206,793
Cost savings:	\$253,274/year



Jacqueline Bershad, Vice President,
Capital Planning and Facilities,
National Aquarium



Longer-lasting and more efficient LED
lighting in the café atrium means fewer bulb
replacements and lower maintenance costs.



Energy-efficient LED lighting enhances
the aquarium experience for visitors.

The BGE Solution

Working with BGE, the aquarium team first replaced the MR16 halogen lamps in the gift shop and throughout much of the facility. The old bulbs required frequent replacement and maintenance, putting a strain on budgets and the staff's time. After testing various bulbs as possible replacements, Amrein decided to install 5-watt MR16 LEDs—replacing nearly 400 inefficient halogens. The aquarium also installed similar LEDs in the café atrium ceiling, above the main information desk and in many hallways.

In addition to lighting, the aquarium tackled another major upgrade: installing variable frequency drives in the pump room for its dolphin habitat. The Pier 4 facility features a 1.3 million gallon pool for the dolphins that requires round-the-clock care to ensure that the pumps maintain appropriate water levels. For more than 20 years, the aquarium used automated valves that were extremely difficult to control, regularly failed and, thus, required frequent replacement. Using program incentives, the team installed 10 variable frequency drives in the pump room, resulting in nearly 60% energy savings and greatly reducing labor hours required for maintenance. Plus, the incentives saved the aquarium more than 13% off the total cost of the upgrades.

Most recently, the aquarium installed LEDs to highlight its award-winning Blacktip Reef exhibit and Living Seashore, a new interactive exhibit where visitors can touch sea creatures like moon snails and jellyfish.

The Benefits

Since 2009, the aquarium has completed 15 energy efficiency projects, all of which help to preserve resources and support excellence in animal care. According to Bershad, the upgrades brought both time- and energy-saving benefits. "The aquarium's resources are always constrained, so it is important to be careful with the time and money we have," she says. "It's smart business to take advantage of any opportunity to use our resources more efficiently."

Amrein adds that he has been consistently impressed by the professionalism of the contractors and BGE Smart Energy Savers Program representatives. "Everyone has been great. It has been a pleasure to work with them each time."

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.

This program supports the EmPOWER Maryland Energy Efficiency Act.



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BGE-CI-11132019