

Boston Medical Center - A Commitment to Leaner Energy



Benefits

- Boston Medical Center (BMC): A Commitment to Energy Conservation & Efficiency
- 2012 and 2013 Combined Energy Savings Goal – 4,500,000 kilowatt hours
- 2012 and 2013 Actual Energy Savings – 8,465,041 kilowatt hours
- 2013 and 2014 Annual Operating Savings - \$2,056,069
- 2014 Planned Energy Savings – 3,000,000 kilowatt hours
- 2014 Planned Annual Operating Savings – \$842,268
- By the end of 2014, BMC will have saved enough energy to power the Menino Inpatient building for one year or provide energy to 465 average homes for one year.
- 2013 and 2014 energy savings would equate to \$41,121,380 revenue increase

Challenge/Situation

Boston Medical Center is a 496-bed teaching hospital. It is the primary teaching hospital of Boston University School of Medicine as well as New England's largest safety-net hospital with 860,000 outpatient visits per year and more than 5,000 employees. Boston Medical Center puts their patients first and uses the guiding principles of efficiency, environment, community, and operating costs to do so. BMC has committed to energy reduction and the Healthier Hospitals' Leaner Energy Challenge because ultimately as they note, "it is the right thing to do; we are in the business of keeping people healthy and emissions/pollutants and diet can be a deterrent to people's health." BMC has an engaged workforce committed to keeping people healthy and doing no harm as well as harnessing their interests to achieve a collective goal. Hospitals are huge energy users as they operate 24/7, but there are many opportunities to make a difference as well as obtain energy rebates. Every dollar a nonprofit hospital saves on energy has the equivalent impact on operating margins as increasing revenues by \$20 notes the Environmental Protection Agency's Energy Star Program.

Strategy/Actions

BMC looked to focus on several areas including: The Green Ribbon Commission; utility management; campus redesign; resiliency planning; evaluation of new technologies; and food programs that reduce CO² and food additives to ensure they are not a detriment to patient health. Programs such as the "fisherman to plate" employee engagement initiative is an example of how they leverage their efforts to improve their patients' health, assist local fishermen, and make fresh wholesome foods available for their neighbors.

Implementation Process

Green Ribbon Commission: Three sectors were brought together: health care (co-chairs – Kate Walsh, BMC president & CEO; Gary Gottlieb, Partners HealthCare president & CEO); higher education; and commercial and industrial. The purpose was to facilitate the reduction of Greenhouse Gas emissions by recruiting institutions to commit to the Pacesetter Agreement; sharing data and best practices; and facilitate cooperative efforts between utilizes and institutions. The overall goal is to reduce Greenhouse Gas emissions by 25 percent by 2020. They are on track to achieve their goal in 2018.



Boston Medical Center 2.5 million square foot campus, Boston, Massachusetts

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Utility Management: In 2012, BMC signed a three-year Memorandum of Agreement with NSTAR to reduce energy use. Through targeted conservation efforts throughout the campus such as reconfiguring the chilled water loop, optimizing the Power Plant, lighting retrofits in DOB Garage and Moakley and the retro-commissioning and redesigning of the HVAC systems, BMC was able to more than double the goal set for 2012. BMC's conservation efforts in 2012 resulted in a \$988,745 rebate from NSTAR, one of the biggest rebates the company issued. BMC used a portion of the rebate to invest in reaching its 2013 goals, which yielded another \$620,431 of NSTAR rebates. BMC's 2013 energy conservation measures included installing energy efficient controls in Menino and Newton, upgrades to systems in Menino, and redesigning new air duct risers in Yawkey.

Resiliency/Disaster Planning: All hospitals have a responsibility to focus on resiliency and disaster planning and as the region's major trauma provider, BMC takes this responsibility very seriously. Thus the campus redesign, discussed below, offers a unique opportunity to provide a robust and efficient operation in good times as well as disaster events. BMC's current disaster plan includes:

- Diesel generators on each of the four buildings forming a grid that will be able to divert power to inpatient areas, the emergency department, radiological equipment coding and other HVAC services to Menino (from non-essential buildings) as needed.
- For long-term power outages, with fuel truck access, the four-building grid system will be able to supply additional equipment power beyond the conventional critical power needs.
- To ensure against local flooding of campus electrical utility equipment, they are planning to move it onto the Menino roof high above any floodwaters.

Looking Towards the Future

Campus Redesign. BMC realizes the importance of continued work in reducing energy usage. They have identified campus redesign as an important opportunity to institute new efficiencies and model energy alternatives that will simultaneously benefit their patients, environment, and resiliency. The redesign, which was launched at the end of 2013, will include: selecting efficient equipment installed for maximum benefit; design and specify building management system to ensure zone occupancy layouts, system performance monitoring and alarming, and ease of maintenance; and patient room design including integrating new clinical operational tools and designing rooms for easy cleaning as well as to minimize noise. The campus redesign will also reduce BMC's energy carbon footprint by 14 percent and eliminate 3,432 truck deliveries and 10,860 transfers annually. The energy efficiencies gained through campus redesign are projected to reduce annual energy costs by approximately \$2.3 million.

Cogeneration. BMC is currently exploring the use of a gas-fired cogeneration plant to provide added heat and power during a disaster. Cogen would also be cleaner and lower-cost energy. Since it uses natural gas as fuel, it will be an additional backup to BMC's rooftop grid system if no fuel deliveries can be received during a disaster.

Lessons Learned/Recommendation

In looking at the ever-increasing cost pressures facing the health care industry it becomes increasingly difficult to justify costs associated with individual energy, resiliency and food plans. BMC has found that integrating their global campus plan provides them the leverage to lower design and implementation costs while providing synergies that maximize energy savings, preparedness and community benefits.

Employee Engagement is an important aspect of BMC's sustainability efforts both in terms of reaching the hospital's goals, but also increasing awareness among employees for their professional and personal knowledge. One of the programs that has been popular is BMC's partnership with the Gloucester Fishermen's Wives Association, Northwest Atlantic Marine Alliance (NAMA) and Health Care Without Harm's (HCWH) Healthy Food in Health Care Program to buy local seafood whenever possible. NAMA and HCWH are working together to shift the health care industry's seafood buying habits. Changing buying policies to include local seafood results in better economic return for fishermen, healthier regional food systems, more resilient coastal communities and has less impact on the marine ecosystem.

Demographic Information

Boston Medical Center has 486 beds in its 2.5 million square foot campus.