

Baystate Health - Bending the Cost Curve



Benefits/Results

- Baystate Health's (Baystate) ambition is for the health system to become the leader in helping create the most energy efficient, safe and effectively managed buildings in the health care industry.
- \$2.3 million has been received or committed to Baystate Health in rebates from local utility companies.
- \$1.3 million utility savings has been realized from Energy Reduction Strategies.
 - 3300 Main Street's (one of the buildings adjacent to the hospital's main campus) Gas & Electricity expense has decreased from \$750k per year to \$395k (2.59 year actual Return on Investment from an original project of 4.29 ROI).
- Baystate will receive an additional \$1.5 million from Utility Contract Rate Reductions in 2015-2017.
- A Cogeneration Strategy (Combined Heat and Power) can reduce energy by an additional \$1.5 million per year. An average cost of a Cogeneration plant is \$15 million. Baystate indicates that \$10 million is available between utility rebates and state grants.
 - Cogeneration provides the potential opportunity to generate an additional \$1.5 million in revenue each year for the next five to ten years

Challenge/Situation

Baystate Health realizes the importance of Leaner Energy not only for the immediate and long term health of patients, staff, and the community, but also its true potential for savings. In other words, sustainability to bend the cost curve. They believe, no matter what your story, leaner energy speaks to everyone; there are chances for large rebates, savings, and health improvements. Baystate worked to accomplish their goals faster to meet budgetary and fiscal year deadlines as well as work within the ever-changing world of health care.

Strategy/Actions

Baystate Health has made leaner energy one of its three main focus areas, in particular cogeneration. The hospital supports investment in energy reduction because it has shown to be a true savings mechanism. Originally, the Facility's Department had funds in their operating budget to invest and showed the hospital that they could reduce their budget by investing in leaner energy. Savings were achieved, reinvestment occurred in energy reduction initiatives leading to further reduced costs. There is nowhere in health care but here where you truly see a three-year return on investment. This has kept the hospital commitment and is now allowing for the potential for Cogeneration.

To further allow for success, Baystate has completed everything in house saving money and allowing tasks to be completed quickly and efficiently. Additionally, Baystate has several community patterns that their Sustainability Committee meets weekly with; this partnership further enhances their ability to succeed in reducing energy usage.



Implementation Process

Initial Projects: Baystate performed initial benchmarking and saw numerous opportunities to improve including redoing controls, replacing boilers and pumps, retrocommissioning, lighting upgrades, and mechanical upgrades. For example, in the Operating Rooms (OR), they worked to improve the quality of air and partnered with the OR staff to show them the importance of this initiative. Not only were they able to improve communications between Facilities and Operating Room staff, but reduce the amount of energy spent as well.

Baystate Health - Bending the Cost Curve

For a specific case example, at 3300 Main Street, Baystate implemented lighting and HVAC upgrades and exceeded their estimated energy savings. They estimated that they would save 961,538kWh or \$125,000; in one year, they saved 1,300,000 kWh or \$175,000. Estimated fossil fuel savings were 20,916 therms or \$67,000 while actual savings was 40,827 therms or \$143,000. The total savings was estimated at \$192,000 but was actually \$318,000. They were also able to obtain \$510,000 in rebates. The return on investment was 2.59 years at 39 percent. Ultimately, they were able to reduce their energy usage as well as utility budget from \$765,852 in 2008-2009 to \$395,000 in 2013-2014.



Cogeneration: Currently, Baystate Health is looking to the future to further improve energy usage and reduce cost, and is thus looking at cogeneration. They have completed studies to understand the upfront costs, potential incentives and rebates and will be working on the next level of schematic planning including site locations, energy audits, and maintenance requirements. Cogeneration will allow:

- Energy savings that can be diverted to fund the treatment of patients.
- Financial benefits compared to the separate purchase of electricity and heating fuel.
- Environmental benefits related to reduce carbon emissions.
- Flexible technology that can be used to provide electricity, heating and cooling if required.
- Fixed budget for utilities.
- Utility Grid Independence.

More specifically, a Combined Heat and Power Plant at Baystate will produce 80 percent of the facility's annual energy consumption making end users less susceptible to increases in electricity delivery charges by the utility, reducing greenhouse gas emissions by 13,263 tons per year (equating to taking 2,301 cars off the road), and estimating a 7.3 year payback and a 14 to 22 percent return on investment. Cogeneration provides the potential opportunity to generate an additional \$1.5 million in revenue each year for the next five to ten years

Lessons Learned/Recommendation

Baystate Health notes that the health care environment is complex and ever changing. It takes the right timing as well as alignment of multiple players and a streamlining of the process to be successful. As there numerous projects to be completed that need approval, it is imperative to start the approval process early as it takes time. A Chief Sustainability Officer is extremely useful in managing all of the endeavors. Finally, it is useful and necessary to have open conversation with community partners on a regular basis.

Demographic Information

Baystate Medical Center has 711 beds and 1.8 million square feet.

Baystate Marylane has about 30-40 beds and 100,000 square feet

Baystate Franklin has 100 beds and 400,000 square feet.