



Building energy efficiency into capital planning

Case Study

Sector:
Healthcare

Customer:
St. Joseph's Hospital

Location:
Syracuse, NY

Measures Implemented:

- Installation and glazing
- Lighting
- Power steam hybrid boilers
- Variable speed drives
- Heat recovery pumps
- Data center consolidation
- Combined heat and power

Energy Savings:
1,413,227 kWh and
\$377,000 annually

Background

As an integral part of the Syracuse and Central New York community for more than 140 years, St. Joseph's Hospital Health Center (St. Joseph's) provides quality care to the sick and injured. St. Joseph's is financially and philosophically committed to providing the best possible health care services at a reasonable cost to ensure that care is provided to those otherwise unable to afford it.

Over the years, St. Joseph's has evolved from a 15-bed hospital to a 431-bed hospital health center that encompasses a 16-county service area with many outpatient and inpatient programs, satellites, and affiliated organizations.

Starting in 2008, St. Joseph's embarked on a series of capital development projects to upgrade and expand its operations. Realizing the benefits of improved efficiency, hospital officials worked with the New York State Energy Research and Development Authority (NYSERDA) to incorporate energy efficiency as part of their capital planning.

Recommendations

St. Joseph's worked with NYSERDA to incorporate energy efficiency into their \$265 million development plan to expand their emergency department and Comprehensive Psychiatric Emergency Program, as well as add a new patient tower and operating room surgical suites.

NYSERDA provided technical assistance services to identify and evaluate energy efficiency opportunities. This process enabled the hospital staff to identify the life cycle costs and savings for the improvements. The energy efficiency improvements included enhanced insulation and glazing; improved lighting power density and exterior lighting; power steam hybrid boilers with economizers and control systems; chillers with waterside economizers and cooling tower variable speed drives; and exhaust heat recovery pumps.

Compared to a building that just meets minimum energy performance requirements, energy efficiency projects will save St. Joseph's approximately \$377,000 in utility costs and significantly reduce electricity usage and fossil fuel consumption.

In 2011, St. Joseph's engaged NYSERDA's data center outreach team to quantify energy savings from their planned initiative to upgrade and consolidate computer equipment. Energy efficiency measures included upgrading network gear and replacing their current desktops and servers with virtual machines. These measures reduced energy used by desktop interfaces and allowed 268 older, inefficient servers to be removed from hospital operations.

In 2013, St. Joseph's began work on a \$15 million combined heat and power (CHP) plant with help from NYSERDA. The CHP plant uses a 4.6-MW Solar Mercury 50 natural gas-fired combustion turbine to produce electricity and heat, along with hot water and chilled water, and provides a majority of St. Joseph's electricity needs.

Support and results

NYSERDA's support helped St. Joseph's defray a portion of the implementation cost to install energy efficiency improvements. In total, St. Joseph's investment could result in annual energy savings of more than 1,413,227 kWh and annual energy cost savings of approximately \$377,000.

Through NYSERDA's Industrial and Process Efficiency (IPE) Program, St. Joseph's reduced data center energy consumption by 862,587 kWh per year. St. Joseph's CHP plant commissioning and startup began in August 2014, and consistent system operation for beneficial use began by January 1, 2015. The new system will generate an estimated 25 million kWh annually, equivalent to the amount of power consumed by approximately 3,600 homes.



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